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RECORD OF DECISION AMENDMENT

PURITY OIL SALES SUPERFUND SITE

SOILS OPERABLE UNIT NO. 2 MALAGA, CALIFORNIA

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 9
San Francisco, California

EPA ID: CAD980736151

June 2006

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LIST OF ACRONYMS

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ARARs	Applicable or Relevant and Appropriate Requirements
bgs	Below Ground Surface
BTPL	Beyond the Property Line
CalEPA	State of California Environmental Protection Agency
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
COCs	Chemicals of Concern
DTSC	State of California Department of Toxic Substances Control
EPA	Environmental Protection Agency
ESD	Explanation of Significant Differences
GCL	Geosynthetic Clay Liner
GSM	Golden State Market
HDPE	High Density Polyethylene
HHRA	Human Health Risk Assessment
HI	Hazard Index
HRS	Hazard Ranking System
MAX	Maximum Exposure
mg/kg	milligram per kilogram
µg/dL	micrograms per deciliter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NHVOC	non-halogenated volatile organic compound
NPL	National Priority List
O&M	operation and maintenance
OU	Operable Unit
PAHs	Polyaromatic hydrocarbons
PHGs	Public Health Goals
PRGs	Preliminary Remediation Goals
QA/QC	Quality Assurance/Quality Control
RAOs	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
RFI	Request for Information
RME	reasonable maximum exposure
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
scfm	standard cubic feet per minute
SSLs	Soil Screening Levels
SSRGs	site-specific remediation goals
SVE	soil vapor extraction
SVOCs	semi-volatile organic compounds
SWRCB	State Water Resources Control Board
TBC	to be considered
TPH	Total Petroleum Hydrocarbons
UCL	Upper Confidence Limit
VOCs	Volatile Organic compounds

Part I: Declaration for the Record of Decision Amendment

A. Site Name and Location

Purity Oil Sales, Inc.
3281 South Maple Avenue
Malaga, Fresno County, California 93725
CERCLIS Identification No. CAD980736151

B. Statement of Basis and Purpose

This Record of Decision (ROD) Amendment presents the amendment to the Selected Remedial Action for the Purity Oil Sales (Purity Oil) Superfund Site Soils Operable Unit No. 2 (OU-2) in Malaga, California. The original ROD was signed September 30, 1992. This document was developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 USC Section 9601 et seq., and to the extent practicable the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Section 300 et seq., (NCP). The United States Environmental Protection Agency (EPA) issues this ROD Amendment pursuant to Section 104 of CERCLA and has selected the remedial actions in accordance with Section 121 of CERCLA. This is considered the final ROD Amendment for the Soils Operable Unit No. 2.

This decision is based on the Administrative Record for this Site. This ROD Amendment will become a part of the Administrative Record file in accordance with 40 CFR Section 300.825 (a) (2) of the NCP. A copy of the Administrative Record is available for review at two locations:

Fresno County Central Library, 2420 Mariposa Street, Fresno, California, (559) 488-3195. Current hours are: Monday through Thursday, 9 a.m. to 9 p.m.; Friday and Saturday, 9 a.m. to 6 p.m.; and Sunday 1 p.m. to 6 p.m.

EPA Superfund Records Center, 95 Hawthorne Street, Suite 403S, San Francisco, California, (415) 536-2000. Hours: Monday through Friday, 8 a.m. to 5 p.m.

C. Assessment of the Site

The response action selected in the 1992 OU-2 ROD, 1996 Explanation of Significant Differences (ESD), and 2001 ESD as modified by this ROD Amendment, is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances, pollutants, and/or contaminants from this Site which may present an imminent and substantial endangerment to the public health or welfare. The Purity Site is defined as the area where contamination has come to be located as a result of historical operations of Purity Oil Sales.

D. Description of the Revised Remedy

EPA signed a ROD for containment of contaminated soils on the Site in September, 1992. The OU-2 ROD required the following: (1) construction of a cap meeting requirements of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 et seq., (2) installation of a soil vapor extraction (SVE) system, (3) construction of a slurry wall around the perimeter of the Purity Property to a depth of 25 feet below ground surface (bgs) with a retaining wall for slope stabilization, (4) installation of a liner in a portion of the irrigation canal located adjacent to the Site, and (5) maintenance of the vadose zone and a groundwater monitoring program.

An ESD for the soil operable unit was signed July 3, 1996. This ESD revised the original ROD based on pre-design data, which was collected at the Site in 1994 and 1995.

The 1996 ESD revised elements of the original 1992 ROD in the following manner:

1. The original ROD stated that a gas collection system would be constructed under the cap, but pre-design studies indicated that gas generation would not exceed allowable emissions. The ESD stated that emissions would be monitored and a treatment system for gas emissions would be built at a later date, if necessary.

2. The required number of SVE wells was reduced because pre-design field measurements demonstrated that the soil is more permeable than estimates used in the original ROD. All components of the SVE system were to be installed during construction of the RCRA cap; however, EPA allowed for the contingent operation of the SVE system based on evaluations of the impermeable cap after installation.

3. The slurry wall requirements were eliminated because perched groundwater was not found during pre-design moisture sampling of the vadose zone.

4. The retaining wall that would surround the RCRA cap was eliminated by re-engineering slopes along the perimeter of the cover.

Construction of the soil remedy began in November 2000. During construction, acid sludge was observed seeping to the surface at several locations along the perimeter of the former waste pit areas. In addition, there were frequent failures of the field-based construction performance tests during implementation of the remedy.

Between December 2000 and October 2002, EPA conducted investigations to assess whether contamination from historical Purity Oil operations had impacted neighboring properties. Based on field evidence and chemical data collected during these investigations, contamination from the Purity Oil Property has impacted the following neighboring properties: Bruno's Iron and Metal, Tall Trees Mobile Home Park, Golden State Market (GSM), and Pick-A-Part Auto Wrecking. A March 2001 ESD required relocation of the Mobile Home Park residents.

Contaminants in soil at these four properties include: volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, petroleum hydrocarbons and metals.

Under the current remedy, any contamination that has migrated onto adjacent properties must be cleaned up in a manner consistent with the selected remedy. Since sludge and contaminated soil were found beneath the buildings on GSM property, EPA also considered four alternatives in this ROD Amendment that could remove the contamination and reduce the risk of potential exposure to contaminants found on GSM property.

The cleanup components of the revised remedy selected in this ROD Amendment are as follows:

1. Excavate and neutralize the entire waste pit disposal area from the ground surface to an estimated depth of 13 to 15 feet bgs (Alternative 8 from the Proposed Plan).

2. Low-permeability cap: Construct a low-permeability cap to reduce surface water infiltration through the waste material and potential mobilization of contaminants in the vadose zone and release to groundwater. The cap will also eliminate the risk of human exposure.

3. Excavation of Contamination on Neighboring Properties: Excavate Purity Site-related sludge and contaminated soil found on four neighboring properties: Pick-A-Part Auto Wrecking, Bruno's Iron and Metal, Tall Trees Mobile Home Park, and GSM. Neutralize the excavated materials (if pH is less than 5), and place them under the low-permeability cap. Excavations will be backfilled with clean soil. In addition, EPA's preferred remedy for contamination under buildings at the GSM property is either demolition and reconstruction of the storage shed and market (GSM Alternative 3) or purchase of the GSM property and cleanup for industrial use (GSM Alternative 4).

4. Groundwater Monitoring Program: Continue with the quarterly groundwater monitoring program currently in place to assess the effectiveness of both the groundwater and soil remedies.

5. SVE and Vadose Zone Monitoring System: Install SVE wells and an extraction and treatment system to remove VOCs from the vadose zone on all affected properties. To monitor the effectiveness of the SVE system, install vadose zone monitoring wells to monitor soil vapor concentrations and vacuum/air flow being created by the extraction wells.

6. Institutional Controls: If soil containing concentrations greater than the residential cleanup levels are left in place on GSM, Bruno's Iron and Metal, Tall Trees Mobile Home Park, or Pick-A-Part Auto properties, place deed restrictions on those properties that prevent the residential use of the property and ensure that the allowable use for those properties remains industrial. Institutional controls will also be required for the Purity Oil property to protect the components of the remedy and allow for operation and maintenance.

7. Additional soil and soil gas sampling: Perform additional soil and soil gas sampling to determine the extent of contaminated soil that is being left in place on the adjacent properties between the bottom of the excavation and the top of the water table.

E. Statutory Determinations

The selected remedy satisfies the statutory requirements of CERCLA. The selected remedy is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective.

This remedy also satisfies the statutory preference for treatment as a principal element of the remedy (i.e., reduces the toxicity, mobility, or volume of contaminants as a principal element through treatment).

Because this remedy may result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment. Additional five year reviews will be conducted after the initial review if appropriate.

F. ROD Amendment Data Certification Checklist

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for the Purity Oil Superfund Site.

- Contaminants of Concern (COCs) and their respective concentrations, Tables 1 and 2
- Cleanup levels established for COCs, Table 3
- Current and anticipated future land use assumptions and current and potential future beneficial uses of groundwater, p. 10
- Potential land and groundwater use that will be available to the Site as a result of the selected remedies, p. 10
- Description of Principal Threat Wastes, p. 24
- Estimated capital, annual operation and maintenance (O&M), and total present worth costs, discount rates, and the number of years over which the remedy cost estimates are projected, Table 4
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G. Authorizing Signature

Elizabeth J. Adams, Chief
Site Clean Up Branch
U.S. Environmental Protection Agency, Region 9

June 30, 2006
Date

Part II: Decision Summary

A. Site Name, Location, and Description

The Purity Oil Sales, Inc. Superfund Site (Purity Oil) is a former used oil recycling facility located in the township of Malaga at 3281 South Maple Avenue in Fresno County, California (CERCLIS Identification Number CAD980736151). The Purity Site (Site) is defined as where contamination as a result of historical operations at Purity Oil has come to be located. The Purity property covers approximately 7 acres in an area zoned for heavy industrial use, and is surrounded by a moving van storage facility and a sandblasting facility to the east, a metal recycling facility and a former residential trailer park to the north, a convenience market to the northeast, a composting facility to the west, and an automotive wrecking facility to the south (Figure 1). Several owners recycled waste oil at Purity Oil between 1934 and 1975. The waste oil was generated by businesses such as service stations, car dealers, truck stops, electrical transformer yards, municipalities, school districts, and military installations. The oil and by-products from the refining process were disposed of on and off the Purity Property in large waste pits. The U.S. Environmental Protection Agency (EPA) is the lead agency for the Site.

B. Site History and Enforcement Activities

Petroleum waste oils were re-refined at the Site between 1934 and 1975. The oil was re-refined using a number of treatment processes including clarification, chemical addition, acidification, dehydration, distillation, and filtration. The oil and by-products from the refining process were collected and stored in sumps and storage tanks, and were disposed of on the Purity Property and in adjacent areas of several neighboring parcels in approximately seven large sludge pits.

In 1973, Purity Oil was ordered by the California Superior Court to empty and backfill the waste pits. Owners of Purity Oil were issued a cleanup and abatement order in 1975 under the enforcement authority of the California Regional Water Quality Control Board. The waste pits were subsequently filled with construction debris. Construction activities at the Site in 2000 showed that the petroleum wastes stored in the pits were not emptied. A fire at the Site in 1976 destroyed the main warehouse building and adjacent equipment. The majority of the remaining equipment was removed from the Purity Property, and the area was partially re-graded. Purity Oil has been listed on the National Priorities List since 1982.

EPA issued a Remedial Investigation Report in 1988 and a Feasibility Study for Purity Oil in 1989. In late 1989, EPA signed a Record of Decision (ROD) for the extraction and treatment of contaminated groundwater and removal of the last remaining storage tanks. The tanks were removed from the Purity Property and an alternate water supply was provided to local residents in 1990. The groundwater treatment system has operated since November, 1994. The Operable Unit 2 (OU-2) ROD for treatment of contaminated Site soils was signed by EPA in 1992. An Explanation of Significant Differences for the soils OU-2 was signed during 1996. The Consent Decree for the soils operable unit was lodged during December 1997 and entered during January 1999.

Soils at the Site contain high levels of lead, polynuclear aromatic hydrocarbons (PAHs), and several organic compounds. The buried waste contains benzene, toluene, PAHs, methylene chloride, phthalates, acetone, other solvents, lead and other metals. Waste has overflowed into

the adjacent Bruno's metal scrap yard and the former Tall Trees Mobile Home Park property. An additional waste pit has been discovered to the rear of Golden State Market

The OU-2 ROD required the construction of a Resource Conservation and Recovery Act (RCRA)-equivalent composite closure cover system consisting of 2 feet of vegetated soil cover, a geotextile, a geonet, high density polyethylene (HDPE) geomembrane, a geosynthetic clay liner (GCL), a foundation and gas collection layer and a sloped cover design. A passive gas collection layer was designed in the closure cover system to control the build up of gas beneath the cover system. The pressure in the collection system was to be monitored and the gas periodically vented. The ROD also required the installation of the subsurface components for the SVE system and vadose zone monitoring wells and contingent operation of the SVE system. Twenty-two air inlet wells and two air extraction wells have already been constructed onsite for potential use in the SVE system. The OU-2 ROD also required replacement of the Fresno Irrigation District (FID), North Central Canal along the southern property boundary. The canal was replaced with a reinforced concrete pipe during February 1998.

During a 1980s removal action at the Site, it was determined that waste material overflowed onto the former Tall Trees Mobile Home Park property at the fence line. Gunite was placed on the slopes between the trailer park and the Purity Property in order to protect residents. EPA documents stated that waste material was still in place on the property boundaries between Tall Trees and the Purity Property beneath the gunite. In 1999 EPA received a report of waste seepage from the ground at trailer space number seven. EPA issued an Explanation of Significant Differences in March 2001 which required the permanent relocation of the residents living in the trailer park. The residents were moved off the Tall Trees property in October 2001.

Construction activities proved that contaminated soils had indeed migrated from the Purity Property onto neighboring properties. The types of contamination found on these properties are outlined below.

Golden State Market Contamination: Described as black, hard to viscous, tarry, acidic sludge, strong odor (usually a sulfurous odor), typically with an acidic pH of less than 1.0.

Boundary Soil Contamination: Found on the properties adjoining the Purity Property and described as greenish-gray silty sand and sandy silt, moderate to poorly consolidated, coarse to fine grained, strong odor (usually a "chemical-type" odor), typically an acidic pH of less than 5.0.

On January 15, 2001, the responsible parties' contractors conducted density tests on the compacted foundation layer in the Golden State Market excavation. During these tests, contractors to Chevron suspected that the foundation layer material properties had changed from the anticipated design and collected a sample from this material. On February 2, 2001, Chevron submitted test results indicating that the material did not comply with the design specifications.

On May 29, 2002, SECOR International Incorporated (SECOR), on behalf of Chevron, submitted a Geotechnical Evaluation and Conceptual Construction Approach for OU-2 that deviated from the remedy outlined by IT in December 2001. The conceptual design did not include neutralizing and solidifying the upper 2 feet of soil with a soil/Portland cement slurry; rather, SECOR proposed placing geotextile fabric on the subgrade slopes prior to construction of the closure cover foundation. This geotextile fabric would cover the slope from the top to toe around the entire closure cover system footprint perimeter. The fabric was to provide additional strength to the near-surface tarry sludge seep areas, mitigating localized settlement of the foundation layer and eliminating the need for chemical stabilization. The conceptual design indicated that the sludge is generally stable at room temperature; however, if heated (to temperatures of 70°F to 80°F), the sludge can experience a reaction that may create "tar boil" at the surface. SECOR also proposed in the conceptual design that a more suitable method to address the sludge would involve covering the material with at least three feet of soil to eliminate solar heating of the sludge. The

remedial design called for placement of 4 feet of soil over the side slopes, a volume of soil stated to be adequate to insulate the effects of solar heating.

Acid sludge has been observed seeping to the surface of the waste pit slopes at approximately twenty locations. Seeps have been observed at ambient temperatures ranging from 40°F to 50°F as well as at temperatures exceeding 70°F. Several attempts to remedy the seeps have been unsuccessful. EPA is concerned that the acidic sludge (with pH as low as less than 1) or other acidic liquids within the waste pit could continue to leak out and could damage a closure cover system. The synthetic liner component of the closure cover system is rated for a pH environment of 2 or greater according to manufacturer specifications. There is also concern that if low pH liquids come into contact with the geosynthetic clay liner, its permeability characteristics could be adversely affected and allow infiltration of water into the waste. Based upon the concerns mentioned above EPA is issuing this ROD Amendment to modify the OU-2 remedy to ensure protection of human health and the environment.

C. Community Participation

The Proposed Plan for the Purity Site was released on April 1, 2005. The public comment period lasted from April 1, 2005 through May 2, 2005, and a public meeting was held on April 13, 2005 at the Robert J. Arriaga Community Center, 3582 South Winery Avenue, Fresno California. A transcript of the meeting is available in the administrative record. No public comments were received at this meeting. Responses to written comments received during the comment period are provided in Part III: Responsiveness Summary.

D. Scope and Role of Operable Unit or Response Action

EPA organized the investigation and remediation at the Purity Site into two operable units (OUs). OU-1 is for groundwater contamination, and OU-2 addresses contamination in soils. The OU-1 ROD was signed on September 26, 1989, and the OU-2 ROD was signed September 30, 1992. ESDs for OU-2 were signed in 1996 and 2001. This ROD Amendment addresses OU-2 and amends the 1996 ESD and the 1992 ROD.

E. Site Characteristics

The site conceptual model for the Purity Site is based upon past site activities, historical records, aerial photographs, data collected as part of the remedial investigation, and data collected during implementation of the soils OU-2 remedy. In addition, EPA collected additional data during its Beyond the Property Line (BTPL) investigations (Tetra Tech, 2003).

The Site was used as a waste oil recycling facility for approximately 40 years. Major wastes generated as part of the recycling processes included the following: residual oil; sludge consisting of clay filter cake mixed with residual oil and processing chemicals; and chemical solutions and the resulting wastewater. These wastes were disposed of in seven unlined pits or spread over the ground surface during the life span of the facility.

Waste pit locations were mapped and characterized using historical photographs and soil borings. The waste pits extended to depths of approximately 1 to 15 feet bgs. Aerial photographs also indicated that waste oil ponds extended beyond the Purity Oil property lines to include portions of the following surrounding properties: Tall Trees Mobile Home Park, Golden State Market, and Bruno's Recycling. In 1973, the wastes remaining in the pits were covered with

soil and construction debris (including rubber tires, wood, concrete and metal). The wastes in the pits were sampled and found to contain lead, benzene, toluene, acetone, methylene chloride, phthalates, polynuclear aromatic hydrocarbons, and pesticides. The pH of the tarry waste was as low as 1.9. During the subsequent investigations, additional contaminants were detected, including semivolatile organic compounds (SVOCs), additional VOCs, and metals.

Table 1 identifies chemicals that have been identified as COCs for the Purity Site.

Geology

Geologic units at the Purity Site and in the Fresno area consist of consolidated and unconsolidated deposits. The unconsolidated materials were deposited as thick alluvial fans formed by the San Joaquin and Kings Rivers, with smaller alluvial fans formed by intermittent rivers adjacent and between these drainage ways. The Quaternary-aged deposits have been divided into older alluvium, lacustrine and marsh deposits, younger alluvium, flood plain alluvium, and sand dunes (CH2M Hill 1988).

The older alluvium is exposed on the surface at the Purity Site and to the east. The alluvium thickens from 0 to 1,200 feet as it extends from the foothills westward. In the Purity Site area, it is about 600 feet thick and consists of lenses of both poorly sorted and well-sorted sandy silt, silty sand, and clayey sand, with interbedded lenses of subangular to subrounded sand and gravel (CH2M Hill 1988).

The younger alluvium is similar to the older alluvium in lithology. The younger alluvium makes up the fine silty sand at the Purity Site. The younger alluvium is 0 to 70 feet thick and consists of fluvial arkosic beds interbedded with flood plain deposits. The flood plain deposits consist of interbedded bluish-gray and brownish yellow clay, silt, and sand. Discontinuous clay lenses are common and consist of lacustrine and marsh deposits of greenish-gray, gray-blue, and yellow clay or silty clay. Occasionally sand deposits are present that are well sorted fine to coarse sand. These deposits lie above the water table (CH2M Hill 1988).

Surface soil consists of a fine sandy loam that is moderately permeable and deep, typically light brownish gray near the surface to pale brown at depth.

Hydrogeology

Several irrigation canals flow in the region, including the North Central Canal along the southern boundary of the Purity Property. No other surface water features beyond intermittent streams are present in the area. The North Central Canal flows out of the Central Canal approximately 600 feet southeast of the Site. The Canal is the only other canal besides the North Central Canal that is likely to have a significant influence on groundwater flow at the Purity Site (CH2M Hill 1988).

The water-bearing sediments in the Fresno area consist of interbedded lenses and deposits ranging from clays to gravels. The coarser fractions can yield large quantities of groundwater, although the quality of the water varies depending on location. The base of the fresh water aquifer in the Site area is located at approximately 1,500 feet bgs.

Silty sands, silts, and sands are predominant beneath the Site. Smaller amounts of clay and gravel are also present. A caliche (hardpan) layer was encountered at 10 to 20 feet bgs in some of the borings and monitoring wells at the Site (CH2M Hill 1988).

The aquifer in the Site area is unconfined to depths of several hundred feet. Below this depth, the aquifer can be confined or semiconfined due to low permeability clay lenses and beds. Unlike other areas of the valley, the Corcoran Clay, which is a thick and extensive confining clay bed, is not present under the Purity Site. Because there is no confining clay layer to restrict vertical

groundwater flow, the shallow aquifer underlying the Purity Site is likely hydrogeologically connected to the deeper aquifer beds, which provide domestic water to the City of Fresno and surrounding area. Under the Safe Drinking Water Act, EPA has designated the aquifer in the Fresno area as a sole-source aquifer.

The water table is located at 40 to 50 feet bgs. Historical data show that until the 1950s, groundwater flowed west, but with the increased pumping of groundwater in the Fresno area, the groundwater flow direction has changed to the northwest. No seasonal changes in the direction of groundwater flow have been observed, although water levels at the Site do fluctuate depending on the season, changing stream flow, and groundwater pumping demands.

Recharge is through (1) streams and irrigation canals, (2) percolation of rainfall and irrigation water, (3) infiltration from urban storm runoff, and (4) inflow of groundwater from the foothills east of Fresno. The Fresno area receives an average of 11 inches of rainfall per year. The amount of rainfall that percolates to groundwater has been estimated to average 2 inches per year in the more permeable soils, but may be lower depending on the clay content of the soils.

Purity Site Contamination

The 1989 Feasibility Study (FS) reported that the sources of contamination at the Purity Site are acidic tarry sludges, which were dumped along with waste solutions from the motor oil recycling processes into several unlined pits in the ground and then buried with soil, concrete, wood, and other debris. The pits appear to have been initially excavated into the existing ground surface to a depth of approximately 6 to 10 feet bgs. Once those pits reached capacity and the original alignment of Fresno Irrigation District's North Central Canal was moved from the center of the Site to the southern boundary of the Purity Property, earthen berms were constructed along the perimeter of the property in the rear backyard area to provide an additional 6 to 10 feet of capacity above the original surface (CH2M Hill 1989).

The tarry wastes contaminated by the sludge extend vertically to up to 15 feet bgs in the former waste pits. Leaching from the waste pits contaminated soil below the waste pits to depths of up to 50 feet bgs. In areas along the perimeter of the Purity Property boundary, contaminants appear to have migrated both on the surface through the berms and in the subsurface at least 50 feet laterally, and potentially farther, depending on the original soil's permeability. In addition to this subsurface seepage of contaminants, adjacent property owners have reported surface overflow of contamination extending 30 feet or more onto their properties from Purity Oil operations (CH2M Hill 1989).

Subsurface contamination varies both in areal extent and depth. Potentially hazardous concentrations of contaminants were detected in soil samples collected from the surface to approximately 40 to 50 feet bgs, which is the water table depth (CH2M Hill 1989). Chemical analyses indicate that the waste is high in lead and organic compounds, with an acidity (pH) level as low as 0.7. The waste contains toluene, benzene, PAHs, methylene chloride, phthalates, acetone, pesticides, metals, and other compounds. Organic compound contamination was reported at concentrations up to 50,000 parts per million (ppm) in the 1992 ROD. Lead levels ranged up to 19,600 ppm.

EPA investigated contamination at properties adjoining the Purity Property (Tetra Tech, 2003) to determine the effect of Purity operations on these parcels. This investigation confirmed impacts from historical operations on the Purity Property have impacted adjacent properties. Table 2 shows a statistical summary of soil data collected on these properties.

The Purity Site contamination also contributed to a groundwater plume contaminated with VOCs and metals (primarily dichloroethene and dichloroethane, SVOCs, iron, and manganese). In the past, the contaminant plume extended downgradient to the northwest at least 2,800 feet and

possibly as far as 5,600 feet, with a lateral width of 800 feet. The plume has been estimated to extend vertically from a depth of approximately 50 (water table) to 120 feet bgs (CH2M Hill 1989).

F. Current and Potential Future Site and Resources Uses

The current and expected future use of the Purity Oil property is for industrial use. The property is located in an industrial area, and is zoned for industrial use. The remedy selected in the 1992 ROD and the 1996 ESD, and the remedy selected in this ROD Amendment, both require land use controls to ensure future land use at the Purity Site remains industrial. The deep groundwater aquifer in the area is designated as a sole-source aquifer and provides municipal drinking water.

G. Summary of Site Risks

A baseline risk assessment for the Purity Site was conducted in the Final Public Health Evaluation of the No-action Alternative for the Purity Oil Sales Site (CH2M Hill 1989). An additional risk assessment was undertaken in 2005 for the soils located off of the Purity Oil Property that have been impacted by activities at the Purity Property.

Risk Assessment in the 1992 ROD

The baseline human health risk assessment indicated lead was the primary soil contaminant of concern. The exposure pathways of concern that were evaluated for potential health risks were:

1. Ingestion of contaminated Site soils by trespassers and future onsite workers or residents.
2. Inhalation and ingestion of dusts from the Site by near-Site workers and residents, and future onsite workers or residents.
3. Direct contact with contaminated Fresno Irrigation District canal sediments by trespassers, farm workers, and irrigation district workers.

The Fresno Irrigation District canal was excavated and replaced with a pipeline in an earlier Site remedial action; therefore, it will not be discussed further as part of the summary of Site risks applicable to this ROD Amendment.

Carcinogenic risk associated with both the surface soil and buried waste was determined to be within, or below, the acceptable risk range. Risks for surface soil ingestion ranged from 3×10^{-6} (most probable occupational exposure) to 7×10^{-5} (worst-case adult residential exposure). Risk associated with deep soil ingestion was calculated to be 6×10^{-7} for the most probable occupational exposure.

Hazard indices calculated for potential surface soil exposure through ingestion ranged from 2.8 (worst-case adult residential exposure) to 39.4 (worst-case 10 kg child exposure).

Beyond the Property Line Human Health Risk Assessment (2005)

Although the ROD for containment of contaminated soils was issued in 1992, subsequent investigations conducted between December 2000 and October 2002 found that contamination from the Site had impacted soils on the properties surrounding the Purity Property. A Human Health Risk Assessment (HHRA, Tetra Tech 2005) evaluated potential health risks from exposure to contaminants on the surrounding properties under current and potential future land use scenarios.

The HHRA used the ratio of detected contaminants to U.S. EPA preliminary remediation goals (PRGs) to estimate cancer risks and hazard indices for exposure to COCs via incidental ingestion, dermal contact, and inhalation of particulate and volatile chemicals released from soil to ambient air. EPA has not developed PRGs to evaluate exposure to soil under a construction worker scenario. Therefore, potential health risks for this exposure scenario were evaluated using the PRG framework for industrial soil and substituting EPA default exposure assumptions for a construction worker scenario.

Soil analytical data used in the HHRA came from four investigations:

- Boundary area soil sampling investigation (Tetra Tech 2001a)
- GSM soil sampling investigation (Tetra Tech 2001b)
- Perimeter exploration trench investigation (Tetra Tech 2003)
- BTPL trenching and test pit study conducted in May 2002 (Tetra Tech 2003)
- BTPL exploratory borings conducted in September and October 2002 (Tetra Tech 2003)

The HHRA was limited to an assessment of data from 0 to 10 feet bgs. This is the maximum depth of soil that can be disturbed using generally available construction equipment.

Current land use at two of the adjacent properties (Bruno's, Pick-A-Part) is commercial/industrial. The GSM is primarily a market, but a caretaker apartment is also located on this property. The Tall Trees property is currently vacant, but was previously used for a mobile home park. Although commercial/industrial future use is likely, a residential exposure scenario was also considered in the HHRA.

The HHRA evaluated the following exposure scenarios for the properties adjacent to the Purity Property:

- Commercial/Industrial Worker
- Construction Worker
- Residential

The potential carcinogenic risk for exposure to soils was found to be within the risk management range of 10^{-6} to 10^{-4} for calculated reasonable maximum exposure (RME) for each scenario. The residential exposure case yielded the highest calculated potential risk of 1×10^{-4}.

Hazard Indices for noncarcinogens did not exceed 1 for the commercial/industrial or construction work RME scenarios. For residential exposure, the total HI reached 5.

Blood lead levels were calculated for each of the exposure scenarios based on the lead content in soils. For the RME case, the estimated blood levels for the commercial/industrial worker and adult residential receptors were below EPA's 10 micrograms per deciliter μg/dL level of concern; however, the results for the construction worker scenario (16 μg/dL) and the child residential scenario (46 μg/dL) exceeded the EPA level of concern. EPA (2004a) provides a Cal/EPA-modified PRG for lead of 150 milligrams per kilogram (mg/kg).

H. Circumstances Prompting the Revised Remedy

The remedy selected in the 1992 ROD was to contain contaminated soil under a RCRA cap. During construction of the remedy, acidic sludge began to seep to the surface at several locations. EPA became concerned that the acidic sludge could come into contact with the synthetic liner and damage cap components. Such a circumstance would reduce overall

protection of human health and the environment. In additional, contaminated soil and sludge was discovered under the Golden State Market storage shed and caretaker apartment. Therefore, this ROD Amendment changes the original remedy to improve the remedy to address contamination on the Purity Property and on the portions of the Purity Site that lie on adjoining properties.

I. Remedial Action Objectives

The general Remedial Action Objectives (RAOs) for the Purity Site are to protect human health and the environment from threats caused by exposure to contaminated soil, acidic sludge and groundwater; and to restore groundwater to potential beneficial use as a drinking water source. The selected remedy meets these RAOs through preventing direct human contact with contaminated soil or acidic sludge contaminated with lead, VOCs, NHVOCs and metals. Groundwater at the Site is addressed in the OU-1 ROD.

EPA has identified the following RAOs for the Purity Oil Sales Superfund Site:

Purity Property RAOs

- Prevent contact of acidic sludge and acidic liquids with the cap components to avoid impairing the function of the cap.
- Prevent human exposure (through direct contact) to contaminated soils containing chemicals of concern at concentrations exceeding applicable or relevant and appropriate requirements (ARARs) and to be considered (TBC) criteria for soil.
- Prevent or minimize further migration of contaminants from source material to groundwater.
- Prevent migration of contaminated groundwater to local domestic or irrigation wells.*

Groundwater RAOs designated by an asterisk (*) are addressed in the OU-2 remedy as described in the OU-2 ROD. However, treatment and containment of contaminated soils at Purity Site assists in protection of groundwater by limiting the potential for contaminants to migrate from soil to groundwater.

RAOs for Portions of the Purity Site on Adjacent Properties:

- Prevent acidic sludge and other Site-related contaminants from coming in contact with industrial workers on properties adjacent to the Purity Property (Pick-A-Part Auto Wrecking, Bruno's Iron and Metal, and former Tall Trees Mobile Home Park) and workers and residents on the GSM property.
- Remove acidic sludge and contaminated soil containing COCs at concentrations exceeding health-based action levels at properties adjacent to the Purity Property.
- Prevent or minimize further migration of contaminants from source material to groundwater.
- Prevent migration of contaminated groundwater to local domestic or irrigation wells.*

- Remediate COCs in soil and groundwater* to drinking water standards and other health-based action levels to reduce risks from potential exposure to indoor air contaminants whose source is Purity Site-related contamination.

- Prevent further migration of soil vapor containing COCs at concentrations exceeding ARARs and TBC criteria.

J. Description of Alternatives

This remedial action for the Purity Oil Superfund Site addresses contaminants found in the pits on the Purity Property. EPA evaluated eight alternatives for portions of the Purity Site on the Purity Property and other properties (with the exception of the Golden State Market). EPA evaluated four alternatives for the Golden State Market property.

Purity Property Acidic Sludge Alternatives

The alternatives evaluated for the Purity Property are as follows:

Sludge Remedy Alternative 1 – No Action
Sludge Remedy Alternative 2 – Solidify Upper 2 Feet on Perimeter Slope of Waste Pits
Sludge Remedy Alternative 3 – Neutralize and Solidify Perimeter of Waste Pits
Sludge Remedy Alternative 4 – Place Engineered Fill on Perimeter Slope of Waste Pits
Sludge Remedy Alternative 5 – Neutralize and Solidify Seeps, Place Engineered Fill and Solidify Perimeter of Waste Pits
Sludge Remedy Alternative 6 – Neutralize and Solidify Entire Waste Pit Disposal Area
Sludge Remedy Alternative 7 – Neutralize and Solidify Perimeter of Waste Pits and Neutralize Interior of Waste Pits
Sludge Remedy Alternative 8 – Neutralize Entire Waste Pit Disposal Area and Place Engineered Fill

Sludge Remedy Alternative 1 – No Action:

Under this alternative the liquid/tar/sludge on the Purity Property would not be addressed. The original remedy would be implemented as defined in the original ROD.

Sludge Remedy Alternative 2 – Solidify Upper 2 Feet on Perimeter Slope of Waste Pits:

This alternative would involve excavating the upper 2-feet of soil along the entire perimeter area of the waste pits, e.g. perimeter slopes, solidifying/treating the excavated soil with Portland cement, and placing the material back in the excavation and compacting the treated soil. The Purity Property would then be capped with a RCRA cap of the same design as in the original OU-2 ROD.

Approximately 6,000 cubic yards of liquid/tar/sludge impacted soils would be; (1) excavated, (2) treated/solidified ex-situ with approximately 800 tons of Portland cement (10% by weight), and (3) placed back into the excavated area and compacted. The Portland cement would act as a binding agent that would increase the compressive strength of the treated material, decrease its permeability, and increase the pH to create a 2 foot buffer zone between the remaining untreated soil within the Purity Property and the RCRA cap.

The cap would consist of a 2 foot foundation layer, a geosynthetic clay liner (GCL), a 60-mil high density polyethylene liner (HDPE), and a 1 foot vegetative layer. The cap would be designed and constructed to promote drainage, minimize erosion, and provide long term minimization of

migration of liquids through the cap. Long term operation and maintenance (O&M) would ensure the integrity of the cap.

Sludge Remedy Alternative 3 – Neutralize and Solidify Perimeter Waste Pits:

This alternative would involve excavating soil along the perimeter of the former waste pits outer wedge to 10 feet inside the crest and to a depth of 13 feet. The Purity Property would then be capped with a RCRA cap. See alternative 2 for description of RCRA cap.

Bench scale testing was conducted on the liquid/tar/sludge impacted soils to determine optimal calcium carbonate addition rates for pH adjustment of the acidic liquid/tar/ sludge at the Purity Site. The objective was to increase the pH above 5 for the neutralized material while eliminating the potential for sulfur dioxide gas to form during the treatment process. The Portland cement would act as a binding agent that would increase the compressive strength of the treated material, decrease its permeability, and create a buffer zone between the remaining untreated soils and the RCRA cap.

Approximately 25,000 cubic yards of liquid/tar/sludge impacted soils would be (1) excavated, (2) neutralized with approximately 6,000 tons of calcium carbonate (15 % by weight), (3) solidified with approximately 4,000 tons of Portland cement (10% by weight), and (4) placed back into the excavation and compacted in lifts.

Sludge Remedy Alternative 4 – Engineered Fill on Perimeter Slope of Waste Pits:

This alternative would involve excavating soils on the outer slope of the former waste pits to 5 feet inside the crest and to a depth of 13 feet, placing and compacting engineered fill in the excavation, and rebuilding the perimeter slopes of the former waste pit disposal area. The Purity Property would then be capped with a RCRA cap. See alternative 2 for description of RCRA cap.

Bench scale testing was conducted on the liquid/tar/sludge impacted soils to determine optimal calcium carbonate addition rates for pH adjustment of the acidic liquid/tar/ sludge at the Purity Site. The objective was to increase the pH above 5 for the neutralized material while eliminating the potential for sulfur dioxide gas to form during the treatment process. The Portland cement would act as a binding agent that would increase the compressive strength of the treated material, decrease its permeability, and create a buffer zone between the remaining untreated soils and the RCRA cap.

Approximately 12,000 cubic yards of liquid/tar/sludge impacted soils would be excavated and placed on the Purity Property. Approximately 12,000 cubic yards of engineered fill, i.e. soil cement or equivalent, would be placed in the excavation and compacted. The engineered fill would provide compressive strength and reduced permeability, and would create a buffer zone between the remaining untreated soils and the RCRA cap.

Sludge Remedy Alternative 5 – Neutralize and Solidify Seeps, Engineered Fill, and Solidify Perimeter of Waste Pits:

This alternative would involve neutralizing the liquid/tar/sludge seeps with calcium carbonate and solidifying with Portland cement. It also would include excavating and reconstructing the former waste pits perimeter outer wedge to 10 feet inside the crest with engineered and solidified fill that would be benched into the untreated soils to a depth of 13 feet. The Purity Property would then be capped with a RCRA cap. See alternative 2 for description of RCRA cap.

The liquid/tar/sludge seeps located on the perimeter slopes would be; (1) excavated, (2) neutralized ex-situ with calcium carbonate (15% by weight), and (3) solidified with Portland cement (10% by weight). Neutralization with calcium carbonate would aid in the elimination of

sulfur dioxide during the treatment process. The neutralized/solidified seep material would then be mixed with the engineered fill to recreate the perimeter slopes.

Approximately 25,000 cubic yards of engineered fill, i.e. soil cement or equivalent, would be placed in the excavation and compacted in lifts. The engineered and solidified fill would provide compressive strength and reduced permeability, and would create a buffer zone between the remaining untreated liquid/tar/sludge within the Purity Property and the overlying RCRA cap.

Sludge Remedy Alternative 6 – Neutralize and Solidify Entire Waste Pit Disposal Area:

This alternative would involve excavating the entire waste pit disposal area to a depth of 13 feet, neutralizing with calcium carbonate and solidifying with Portland cement the excavated sludge and soil, and placing and compacting the treated soil back into the excavation. An impermeable cap would be constructed over the treated soil.

Bench scale testing was conducted on the liquid/tar/sludge impacted soils to determine optimal calcium carbonate addition rates for pH adjustment of the acidic liquid/tar/ sludge at the Site. The objective was to increase the pH above 5 for the neutralized material while eliminating the potential for sulfur dioxide gas to form during the treatment process. The Portland cement would act as a binding agent that would increase the compressive strength of the treated material and decrease its permeability.

Approximately 80,000 cubic yards of liquid/tar/sludge impacted soils would be; (1) excavated, (2) neutralized with approximately 17,000 tons of calcium carbonate (15% by weight), (3) solidified with approximately 17,000 tons of Portland cement (10% by weight), and (4) placed and compacted in lifts within the boundary of the Purity Property.

The impermeable cap would consist of 6 inches of sand between the neutralized/solidified material and a GCL or 60-mil textured HDPE liner, a drainage layer (geosynthetic or gravel), and a 2 foot vegetative layer. The cap would be designed and constructed to promote drainage, minimize erosion, and provide long term minimization of migration of liquids through the cap. Long term operation and maintenance (O&M) would ensure the integrity of the cap.

Sludge Remedy Alternative 7 – Neutralize and Solidify Perimeter of Waste Pits and Neutralize Interior of Waste Pits:

This alternative would involve neutralizing with calcium carbonate and solidifying with Portland cement the perimeter of the former waste pits outer ring to 10 feet inside the crest and to a depth of 13 feet, and neutralizing with calcium carbonate the interior of the waste pits to a depth of 13 feet. An impermeable cap would be constructed over the treated soil. See alternative 6 for description of impermeable cap.

Approximately 80,000 cubic yards of liquid/tar/sludge impacted soils would be excavated and neutralized with approximately 17,000 tons of calcium carbonate (15 % by weight). Following neutralization, approximately 25,000 cubic yards of the original 80,000 cubic yards would be solidified with Portland cement (Refer to Alternative 3 for approximate quantity of Portland Cement). The Portland cement solidified material would be utilized to construct the perimeter dikes/slopes of the Purity Property. The Portland cement would act as a binding agent that would increase the compressive strength of the treated material and decrease its permeability.

Sludge Remedy Alternative 8 – Neutralize Entire Waste Pit Disposal Area and Engineered Fill:

This alternative would involve excavating the entire waste pit disposal area to a depth of 15 feet, neutralizing with calcium carbonate the excavated soils, then placing and compacting the treated

soil back in the excavation. An impermeable cap would be constructed over the treated soil. See Alternative 6 for description of impermeable cap.

Approximately 80,000 cubic yards of liquid/tar/sludge impacted soils would be excavated and neutralized ex-situ with approximately 17,000 tons of calcium carbonate (15 % by weight). Following neutralization, the neutralized material would be placed and compacted in lifts to design grades and contours.

Remedy Evaluation for the Neighboring Properties

Contamination on the properties adjacent to the Purity Property (Pick-A-Part Auto Wrecking, Bruno's Iron and Metal, Tall Trees Mobile Home Park, and GSM) will be addressed in a manner consistent with the selected remedy for the Purity Property. Contaminated soil will be excavated until the cleanup goals are met. The excavations will be backfilled with clean soil imported from offsite. The elements of the adjacent properties remedy are summarized below:

- Excavate all acidic sludge found on neighboring properties.
- Excavate contaminated soil found on neighboring properties that originated from the historic operation of Purity Oil. To protect against direct contact exposure, EPA sets the vertical limits of excavation for direct contact at 4 feet bgs for industrial properties (Pick-A-Part Auto Wrecking, Bruno's Iron and Metal, and Tall Trees Mobile Home Park) and 7 feet bgs at the residential (GSM) property, unless the site is purchased and remediated to industrial use.
- Excavate contaminated soil where levels of contaminants of concern (COCs) exceed the health-based cleanup levels calculated from EPA Region PRGs for industrial use, and where total petroleum hydrocarbon (TPH) levels exceed 10,000 mg/kg at the Pick-A-Part Auto Wrecking, Bruno's Iron and Metal, and Tall Trees Mobile Home Park properties. The contaminated materials would be excavated until the soil cleanup level is met or the maximum depth of 4 feet is reached.
- Excavate contaminated soil where levels of COCs exceed the health-based cleanup levels calculated from EPA Region 9 PRGs for residential use, and TPH levels exceeding 2,300 mg/kg at GSM property. The contaminated materials will be excavated until the soil cleanup level is met or the maximum depth of 7 feet is reached.
- Backfill all excavations with clean soil placed in 1-foot-thick lifts and compacted.
- Haul the excavated soil to the Purity Property, neutralize the soil (if necessary), and place under the low-permeability cap.

On GSM Property, sludge and contaminated soil were also found beneath the building structures. EPA evaluated four alternatives to address the contamination that extends beneath GSM buildings, which are summarized below.

Golden State Market Alternatives for Contamination Under Buildings

On the GSM Property, sludge and contaminated soil were found beneath the storage shed located behind the market. The contamination and sludge may extend beneath the market as well. EPA considered four alternatives to reduce risk from potential exposure to the acidic sludge

and contaminated soil under these structures. Each alternative is illustrated on Figure 3 and summarized in the following sections.

Golden State Market Alternative 1 – No Action
Golden State Market Alternative 2 – Storage Shed Demolition, Excavation, and Reconstruction, and Installation of Ventilation System
Golden State Market Alternative 3 – Storage Shed and Market Demolition and Reconstruction
Golden State Market Alternative 4 – Purchase of the Golden State Market Property and Rehabilitation for Industrial Use

GSM Alternative 1 – No Action: EPA is required to consider a No Action alternative for comparison with other remedial alternatives. The No Action alternative provides a baseline for evaluation in terms of risk to the public if no action is taken. The No Action alternative does not involve any proactive treatment, removal, or monitoring of the contaminated media.

GSM Alternative 2 – Storage Shed Demolition, Excavation, and Reconstruction, and Installation of Ventilation System: This alternative would involve (1) demolition of the rear storage shed, excavation of soil, and reconstruction of the shed, and (2) installation of a ventilation system that would block and re-direct subsurface vapors from entering GSM and the caretaker's apartment. The demolition/excavation/rebuilding phase would involve the following activities:

- Demolish the entire wood storage shed and its foundation
- Excavate all acidic sludge found on GSM Property
- Excavate all contaminated soil found on GSM Property that originated from historic Purity Oil operations. The vertical limits of excavation for direct contact with soil will be set at 7 feet bgs. Excavated sludge and soils will be placed under the cap on the Purity Oil property.
- Use health-based cleanup levels calculated from EPA Region 9 PRGs for residential use, and 2,300 mg/kg for TPH as soil cleanup levels
- Backfill the excavation with clean soil, and construct a new storage shed with a ventilation system as necessary
- Record an enforceable deed restriction and deed notification with the land to provide appropriate notice to future owners that contaminated soil may be present at depths greater than 7 feet bgs. The deed restriction and notification would not prevent future industrial development; however, notification to and approval by regulatory agencies would be required before work below 7 feet bgs could begin.

A ventilation system would be installed to prevent organic vapors from entering the market through cracks and other openings in the foundation. This includes placing a liquid sealant over the entire floor of the market to block vapors that could travel through floor cracks, drains, or utility openings. A perforated drain pipe would be placed around the perimeter of the market and beneath the market's foundation to redirect the subsurface vapors and vent the vapors outside the building to above the roof line of the market. The venting system would be installed in two phases. Phase 1 would consist of sealing the floor of the market, and then installing the subsurface piping and aboveground vents and testing the system under natural (passive) conditions. Phase 2, if necessary, would consist of installing a low-flow fan that would be

attached to the subsurface piping to create a vacuum beneath the market foundation for active (mechanical) ventilation of vapors.

GSM Alternative 3 – Storage Shed and Market Demolition and Reconstruction: This alternative would involve (1) full demolition and reconstruction of the rear storage shed and (2) depending on the extent of contamination beneath the market, partial to full demolition and reconstruction of the market building. A phased approach would be used to implement this alternative as summarized below.

- Phase 1 – Storage Shed Demolition and Reconstruction: Demolish the storage shed, excavate the sludge and contaminated soil, and reconstruct the storage shed.

- Phase 2 –Caretaker's Apartment Demolition and Reconstruction: If contamination is found to extend beneath the caretaker's apartment, the caretaker's apartment would be demolished, sludge and contaminated soil would be excavated, and the caretaker's apartment would be reconstructed.

- Phase 3 – Market Demolition and Reconstruction: If contamination is found to extend beneath the market, the market would be demolished, sludge and contaminated soil would be excavated, and the market would be reconstructed.

Excavation and reconstruction activities would consist of (1) removal of all Purity Site-related sludge and (2) removal of contaminated soil found on the GSM Property to a maximum depth of seven feet bgs unless contaminant concentrations are less than health-based cleanup levels calculated from EPA Region 9 PRGs for residential use and 2,300 mg/kg for TPH. Excavated sludge and soils would be placed under the cap on the Purity Property. All excavations would be backfilled with clean soil. The buildings would be replaced in kind (of similar materials, size and quality). Temporary relocation of the GSM business would be required for this alternative.

GSM Alternative 4 – Purchase of the GSM Property and Industrial Rehabilitation: This alternative would involve purchasing the land and buildings on the GSM Property and cleaning up the parcel to levels suitable for industrial use. Under this approach, the remedial action would consist of the following:

- Excavate all acidic sludge found on the GSM Property and demolish all buildings.

- Excavate all contaminated soil found on the GSM Property that originated from historic Purity Oil operations to prevent direct contact exposure. The vertical limits of the excavation would be set at 4 feet bgs. Excavated sludge and soils will be placed under the cap on the Purity Property.

- Use health-based cleanup levels calculated from EPA Region 9 PRGs for industrial use and 10,000 mg/kg for TPH as soil cleanup levels.

- Backfill all excavation with clean soil.

- Record an enforceable deed restriction and notification with the land to provide appropriate notice to future owners that contaminated soil may be present at depths greater than 4 feet bgs. The deed restrictions and notifications would allow possible future industrial development; however, notification to and approval by regulatory agencies would be required before work below 4 feet bgs could begin. It is not EPA's intention to prevent further industrial use of the Golden State Market at some time in the future. However, since soil removal stops at 4 feet bgs, it is possible that removal of

additional contaminated soil will be required if future redevelopment occurs on the GSM property.

After excavation of sludge and contaminated soil on all of the properties adjoining the Purity Property is completed for any of the alternatives, additional soil and soil gas sampling will be performed to determine the extent of contamination that is being left in place on these properties between the bottom of the excavation and the water table. This information will be utilized to determine if remaining levels are a threat to groundwater (by leaching) or to indoor air (by vapor intrusion) and if additional remedial actions are required to protect public health and the environment. EPA is currently evaluating a change to the groundwater remedy for the Site. Results from soil and soil gas sampling will be incorporated into the decision-making process for possible changes to the groundwater remedy.

K. Comparative Analysis of Alternatives for the Revised Remedy

In accordance with the NCP, the remedial alternatives developed for the onsite areas of the Purity Site were evaluated by comparison to each other to identify relative advantages and disadvantages. The comparative analysis conducted by EPA was based on the nine criteria specified in Section 121(b) of CERCLA. For an alternative to be an acceptable remedy it must, at a minimum, satisfy the statutory requirements of two threshold criteria: 1) Overall Protection of Human Health and the Environment, and 2) Compliance with Applicable or Relevant and Appropriate Requirements. A summary of the comparative evaluation of alternatives for the Purity Property is shown on Figure 2; and a summary of the comparison for the GSM Property is shown on Figure 3.

The nine CERCLA evaluation criteria are:

1) Overall protection of human health and the environment – addresses whether each alternative provides adequate protection of human health and the environment and describes how health risks are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls;
2) Compliance with ARARs – Section 121(d) of CERCLA and NCP §300.430(f)(l)(ii)(B) require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations which are collectively referred to as ARARs unless such ARARs are waived under Section 121(d)(4);
3) Long-term effectiveness and permanence – the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met (includes consideration of residual risk that will remain onsite and the adequacy and reliability of controls);
4) Reduction of toxicity, mobility, or volume – the anticipated performance of the remedy to permanently or significantly reduce the toxicity, mobility, and volume of contamination;
5) Short-term effectiveness – addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community, and the environment during construction and operation of the remedy until cleanup levels are achieved;
6) Implementability – addresses the technical and administrative feasibility of a remedy from design through construction and operation (availability of services and materials, administrative feasibility, coordination with other government entities, etc.);
7) Cost – capital, annual O&M and total present worth cost estimates for the remedial alternatives and indirect costs of each alternative in comparison to other equally protected alternatives;
8) State acceptance; and
9) Community acceptance.

The first two criteria are threshold criteria that must be met by each alternative. The next five criteria are the primary balancing criteria upon which the comparison is mostly based (criterion descriptions provided above). The final two criteria are referred to as modifying criteria (based on public comment received during the Proposed Plan Public Comment Period) to evaluate state and community acceptance.

Purity Property Alternatives Evaluation

A comparative analysis for each alternative relative to the nine evaluation criteria listed above is summarized on the attached Figure 2. A more detailed comparison of alternatives is presented in the following sections.

Overall Protection of Human Health and the Environment

Alternative 1 (No Action) and Alternative 2 (Solidify Upper 2 Feet on Perimeter Slope of Waste Pits) do not meet this criterion. If no action (Alternative 1) is taken at the Purity Site, human exposure may occur to COCs at concentrations exceeding allowable levels. With Alternative 2, the potential for exposure to COCs at concentrations exceeding ARARs and TBC soil levels exists due to concerns regarding the long-term effectiveness of this alternative. Since these two alternatives do not meet this threshold criterion, they will not be discussed in detail during the evaluation of the remaining criteria.

Alternative 3 (Neutralize and Solidify Perimeter of Waste Pits), Alternative 4 (Place Engineered Fill on Perimeter Slope of Waste Pits) and Alternative 5 (Neutralize and Solidify Seeps, Place Engineered Fill, and Solidify Perimeter of Waste Pits) partially meet the overall protection of human health and the environment criterion. Each of these three alternatives is limited by only partially meeting the additional evaluation criteria of compliance with ARARs; long-term effectiveness; reduction of toxicity, mobility, or volume; and short-term effectiveness.

Alternative 6 (Neutralize and Solidify Waste Pits Disposal Area), Alternative 7 (Neutralize and Solidify Perimeter of Waste Pits and Neutralize Interior of Waste Pits), and Alternative 8 (Neutralize Entire Waste Pit Disposal Area and Place Engineered Fill) all fully meet overall protection of human health and the environment.

Compliance with ARARs

Alternative 1 (No Action) does not meet the remedial action objectives and does not achieve compliance with ARARs.

Alternative 2 (Solidify Upper 2 Feet on Perimeter Slope of Waste Pits), Alternative 3 (Neutralize and Solidify Perimeter of Waste Pits), Alternative 4 (Place Engineered Fill on Perimeter Slope of Waste Pits) and Alternative 5 (Neutralize and Solidify Seeps, Place Engineered Fill, and Solidify Perimeter of Waste Pits) partially meet compliance with ARARs. However, these alternatives do not fully comply with all of the ARARs because only portions of the waste pit material will be neutralized and/or solidified.

Alternative 6 (Neutralize and Solidify Waste Pit Disposal Area), Alternative 7 (Neutralize and Solidify Perimeter of Waste Pits and Neutralize Interior of Waste Pits) and Alternative 8 (Neutralize Entire Waste Pit Disposal Area and Place Engineered Fill) comply with ARARs and meet this evaluation criterion.

Long-term Effectiveness

Alternative 2 (Solidify Upper 2 Feet on Perimeter Slope of Waste Pits) does not meet this criterion because only the upper two feet of the perimeter slope will be solidified. The potential exists for additional migration of COCs from the waste over the long term.

Alternative 3 (Neutralize and Solidify Perimeter of Waste Pits), Alternative 4 (Place Engineered Fill on Perimeter Slope of Waste Pits) and Alternative 5 (Neutralize and Solidify Seeps, Place Engineered Fill, and Solidify Perimeter of Waste Pits) partially meet the long-term effectiveness criteria. In each of these three alternatives, untreated waste would remain in portions of the waste pit areas. In addition, field tests showed that waste material and seeps still occurred when only the seeps or localized areas were treated. Compliance with the remedial action objectives over the long term would not be met by these alternatives.

Alternative 6 (Neutralize and Solidify Waste Pit Disposal Area), Alternative 7 (Neutralize and Solidify Perimeter of Waste Pits and Neutralize Interior of Waste Pits) and Alternative 8 (Neutralize Entire Waste Pit Disposal Area and Place Engineered Fill) treat the waste pit material and would meet the long-term effectiveness goal.

Reduction of Toxicity, Mobility, or Volume

Alternative 2 (Solidify Upper 2 Feet on Perimeter Slope of Waste Pits) and Alternative 4 (Place Engineered Fill on Perimeter Slope of Waste Pits) do not reduce toxicity, mobility, or volume of the waste because the majority of the waste will not be treated.

Alternative 3 (Neutralize and Solidify Perimeter of Waste Pits), Alternative 5 (Neutralize and Solidify Seeps, Place Engineered Fill, and Solidify Perimeter of Waste Pits), and Alternative 7 (Neutralize and Solidify Perimeter of Waste Pits and Neutralize Interior of Waste Pits) partially meet the reduction criterion. Portions of the former waste pit areas would remain untreated. In addition, field tests showed that waste material and seeps still occurred when only the seeps or localized areas were treated. Alternative 8 (Neutralize Entire Waste Pit Disposal Area and Place Engineered Fill) would treat the entirety of the waste pits; however, the metal toxicity of the waste remains unchanged.

Alternative 6 (Neutralize and Solidify Waste Pit Disposal Area) meets this criterion because the entirely of the waste pits would be neutralized and solidified.

Short-term Effectiveness

Alternative 2 (Solidify Upper 2 Feet on Perimeter Slope of Waste Pits), Alternative 3 (Neutralize and Solidify Perimeter of Waste Pits), Alternative 4 (Place Engineered Fill on Perimeter Slope of Waste Pits) and Alternative 5 (Neutralize and Solidify Seeps, Place Engineered Fill, and Solidify Perimeter of Waste Pits) partially meet this criterion. In addition, field tests showed that waste material and seeps still occurred when only the seeps or localized areas were treated. Since only a portion of the waste pit material would be treated, these alternatives only partially protect human health and the environment during the construction and implementation period.

Alternative 6 (Neutralize and Solidify Waste Pit Disposal Area), Alternative 7 (Neutralize and Solidify Perimeter of Waste Pits and Neutralize Interior of Waste Pits) and Alternative 8 (Neutralize Entire Waste Pit Disposal Area and Place Engineered Fill) meet the short-term effectiveness criterion.

Implementability

It is technically and administratively feasible to implement all of the alternatives that were evaluated for the ROD Amendment. Therefore, all of the alternatives meet this criterion.

Cost

Estimated capital costs for each of the alternatives are presented on Figure 2.

State Acceptance

State acceptance of the Selected Alternative is discussed in Section M.

Community Acceptance

Community members did not provide comments at the public meeting for the Proposed Plan, and written comments were submitted by one PRP. These comments and EPA's responses are provided in Part III: Responsiveness Summary.

Golden State Market Alternatives Evaluation

The four alternatives considered for the contamination underneath buildings on the GSM Property were compared to the evaluation criteria. This analysis is summarized on Figure 3. GSM Alternative 3 (Storage Shed and Market Demolition and Reconstruction) and GSM Alternative 4 (Purchase Market and Industrial Rehabilitation) fully meet the evaluation criteria. GSM Alternative 2 (Storage Shed Demolition and Reconstruction, Seal Floor and Ventilation) partially meets the evaluation criteria.

If no action is taken, residual contamination in soil could migrate to the surface in vapor form and/or migrate downward and act as a continual source of groundwater contamination. There is no cost associated with this alternative, and it would provide the least overall protection of human health and the environment. The No Action alternative does not meet EPA's remedial action objectives and does not comply with state or federal requirements because contamination in soil has been found on neighboring properties at concentrations exceeding health based standards. GSM Alternative 1 (No Action) will not be carried forward in the evaluation of alternatives.

The remaining remedial alternatives for the GSM Property were evaluated in detail with respect to the nine evaluation criteria by EPA and the results of this evaluation follow.

Overall Protection of Human Health and the Environment

This criterion addresses whether each alternative provides adequate protection of human health and the environment. GSM Alternative 2 partially meets this criterion. Acidic sludge and/or contaminated soil would be left in place beneath the GSM market building, since only the shed would be demolished for this alternative. Sealing the floor of the GSM does have the potential to block the indoor air exposure pathway, but this engineering control is only effective if the seal and ventilation equipment are properly maintained over the long term and if the GSM floor was thick enough to prevent migration.

GSM Alternative 3 (Storage Shed and Market Demolition and Reconstruction) and GSM Alternative 4 (Purchase Market and Industrial Rehabilitation) eliminate the presence of acidic sludge through excavation. Risks posed by direct contact would be eliminated by excavating

contaminated soil to the appropriate depth (four feet for industrial use and seven feet for residential use). Therefore, both GSM Alternative 3 and GSM Alternative 4 meet this criterion.

Compliance with ARARs

GSM Alternative 2 partially complies with ARARs by removing acidic sludge from beneath the storage shed and sealing the floor of the GSM market building. However, acidic sludge and/or contaminated soil would be left in place beneath the market building. This does not achieve the full compliance with ARARs that would be provided by GSM Alternatives 3 and 4. Complete removal of the acidic sludge, and excavation of soils to the specified depths, fully complies with the ARARs identified for the GSM Property.

Long-term Effectiveness

Long term effectiveness and permanence refers to the expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time. GSM Alternative 2 relies on engineering controls such as sealing the floor and installing a mechanical ventilation system to prevent subsurface vapors from entering the GSM building. This alternative requires long term operation, inspection, and maintenance to ensure it remains protective. GSM Alternative 3 and GSM Alternative 4 remove the acidic sludge and contaminated soil beneath the building. This removal represents a more effective solution over the long term. Therefore, GSM Alternatives 3 and 4 are preferred based on this criterion.

Reduction of Toxicity, Mobility, or Volume

CERCLA includes a preference for selection of remedies that include treatment of waste. All of the GSM Alternatives (excluding No Action) remove acidic sludge and contaminated soil from the GSM. The sludge would be neutralized (a form of treatment) and placed under the low-permeability cap to eliminate potential migration of hazardous substances. Alternatives 3 and 4 allow for complete removal, while Alternative 2 removes only a portion of the waste and relies on engineering controls to prevent vapor intrusion. GSM Alternatives 3 and 4 are preferred over GSM Alternative 2 due to this more complete removal and lack of reliance on engineering controls being applied on a foundation that is not thick enough to prevent migration.

Short-term Effectiveness

Short-term effectiveness addresses the period of time needed to implement the remedy and any adverse effects posed to workers, the community and the environment during construction of the remedy. GSM Alternative 2 would involve demolition of the storage shed and removal of contaminated soil and sludge while the market is potentially still in operation. This impact is avoided in GSM Alternatives 3 and 4, because the market would not be in operation during construction of the remedy. Therefore, these two alternatives more fully meet this criterion.

Implementability

This criterion addresses the technical and administrative feasibility of implementing a remedy from design through construction and operation. GSM Alternative 2 is evaluated to partially meet this criterion in comparison to GSM Alternatives 3 and 4. The floor seal and subsurface ventilation in GSM Alternative 2 require long-term operation and maintenance that may be less feasible to implement since regular attention is required to assure the remedy remains in place and is effective. In addition, it is comparatively more difficult to implement the partial demolition Alternative 2 because a portion of the building will remain during excavation. The presence of the building could interfere with necessary excavation due to concerns of undermining the structure's foundation.

Cost

The costs associated with each of the GSM Alternatives are presented on Figure 3. The purchase price of the GSM Property or costs of relocation and/or lost business during the remedial construction period are not included in these cost estimates.

State Acceptance

State acceptance of the Selected Alternative for the GSM is discussed in Section M.

Community Acceptance

Community members did not provide comments at the public meeting for the Proposed Plan, and written comments were only submitted by one PRP. These comments and EPA's responses are provided in Part III: Responsiveness Summary.

Based on EPA's evaluation of alternatives for contamination under buildings on the GSM property, the preferred remedy is either GSM Alternative 3 or GSM Alternative 4. EPA believes that Alternatives 3 and 4 both (1) meet the remedial action objectives for the adjacent properties and (2) meet the nine criteria for remedy evaluation. GSM Alternative 4 will be implemented if an agreement is reached for the PRP to purchase the GSM property. If a purchase agreement cannot be reached, GSM Alternative 3 will be implemented.

L. Principal Threat Waste

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable. The "principal threat" concept is applied to "source materials" at a Superfund site. The principal threat wastes at the Purity Site include the potential for liquid source materials, such as non-aqueous phase liquids, in the former disposal pits. These wastes also include mobile source material in subsurface soil containing high concentrations of COCs that are potentially mobile due to subsurface transport (e.g., leaching to groundwater). The preferred remedy, detailed in the following section, uses treatment to address these wastes.

M. Selected Remedy: Preferred Alternative

Purity Property Selected Remedy

The assembled remedial alternatives were evaluated in detail against the nine evaluation criteria of CERCLA. Of the eight alternatives evaluated, EPA's preferred remedy to address the acidic sludge is Alternative 8, which consists of neutralizing the entire waste pit disposal area and covering the neutralized waste pits with a low-permeability cap. Alternative 8 fully meets all criteria except for partially meeting "Reduction of Toxicity, Mobility, or Volume." The toxicity of the metals in the waste would remain unchanged; however, the low-permeability cap would encapsulate the metal-contaminated waste, reduce surface water from infiltrating through the waste and potentially mobilizing contaminants, and prevent human contact with the waste thereby reducing potential public health risks. EPA believes the preferred alternative (1) meets the remedial action objectives and (2) meets the nine criteria for remedy evaluation. The State of California Department of Toxic Substances Control concurs with the selected Alternative 8 (Neutralize Entire Waste Pit Disposal Area and Place Engineered Fill) as documented in correspondence dated May 26, 2006.

The cap design for Alternative 8 differs from proscriptive RCRA cap design specified in the original ROD. EPA selects a final cover in this ROD Amendment that will meet the closure

performance standards specified in the ARARs. Under the revised remedy selected in this ROD Amendment, all of the acidic sludge on and off the Purity Property will be excavated and neutralized. The material will also be stabilized and placed in engineered lifts under the final cap. This treatment eliminates liquid sludge and reduces the possibility of migration of hazardous substances from the waste material, and the cap design has been modified accordingly. The revised remedy final cover does not include the HDPE layer specified in the original ROD; the bentonite/clay mixture is replaced with a geosynthetic clay liner; and the foundation layer is reduced in thickness.

Details of the anticipated capital, annual operation and maintenance (O&M) and total present worth costs for the Purity Property Selected Remedy are presented on Table 4. This table includes additional cost detail beyond that provided in the Proposed Plan, which focused on comparative capital costs. Estimated periodic costs and O&M costs are similar for the range of evaluated alternatives (with the exception of No Action). Therefore, the comparative cost evaluation in the Proposed Plan remains valid.

Selected Remedy for Adjacent Properties (Except Under GSM Buildings)

EPA will excavate contaminated soil and backfill the excavations with clean soil to address the sludge and contaminated soil at the neighboring properties (Pick-A-Part Auto Wrecking, Bruno's Iron and Metal, former Tall Trees Mobile Home Park, and GSM except under GSM buildings) to ensure these properties are remediated in a manner consistent with selected remedy for the Purity Property. This will include excavating all of the acidic sludge found on neighboring properties, excavating contaminated soils that originated from past operations at the Purity Oil Property, and excavating soils that exceed the cleanup levels based on the appropriate Region 9 PRGs and other cleanup standards specified in the following section to the specified depth. The anticipated extent of the excavation beyond the Purity Property is presented on Figure 4. All excavations will be backfilled with clean soil placed in 1-foot-thick lifts and compacted. The excavated soil will be hauled to the Purity Property, neutralized (if necessary), and placed under the low-permeability cap.

GSM Selected Alternative

Sludge and contaminated soil were found beneath structures on the GSM property, so an additional four alternatives were evaluated to address this contamination.

Based on EPA's evaluation of alternatives for the GSM Property, the preferred remedy is either GSM Alternative 3 or GSM Alternative 4. EPA believes that Alternatives 3 and 4 both (1) meet the remedial action objectives for the other properties adjoining the Purity Property and (2) meet the nine criteria for remedy evaluation. The State of California Department of Toxic Substances Control concurs with the selected remedy for contamination beneath buildings at the GSM as documented in correspondence dated May 26, 2006.

If GSM Alternative 3 is implemented, temporary relocation of the GSM business will be required. All relocation shall be in accordance with Superfund Response Actions: Temporary Relocations Implementation Guidance, U.S. Environmental Protection Agency OSWER Directive 9230.0-97, April 2002

SVE System and Post-Excavation Soil and Soil Gas Sampling

After excavation of sludge and contaminated soil on the adjoining properties is complete, additional soil and soil gas sampling will be performed to determine the extent of contamination

that is being left in place on the these properties between the bottom of the excavations and the top of the water table. Information from this sampling will be utilized to determine if remaining levels are a threat to groundwater or indoor air by the vapor intrusion pathway and if additional remedial actions are required to protect public health and the environment. EPA is currently evaluating a change to the groundwater remedy for the Site. This information will be included in the decision making process for potential changes to the groundwater remedy.

The selected remedy also retains the prior OU-2 ROD requirement for installation of an SVE system and a vadose zone monitoring system for the protection of groundwater and human health by potential vapor intrusion. SVE wells will be installed to remove VOCs from the vadose zone on all properties affected by contamination from the Purity Site. Vadose zone monitoring wells will be installed to monitor soil vapor concentrations and the vacuum/flow rate created by the extraction wells. Specifics of the SVE system will be set forth in the remedial design.

Those properties where contamination remains in place at levels above those suitable for unrestricted reuse will be subject to institutional controls, such as a deed restriction, to ensure sensitive uses do not occur at these properties. The areas where institutional controls are anticipated to be necessary are shown on the attached Figure 5.

Institutional Controls

Institutional controls will be required for the Purity Property to protect the components of the remedy (e.g., closure cover system, groundwater extraction system, monitoring wells, and SVE system) and allow for operation and maintenance. If soil containing concentrations greater than the residential cleanup levels are left in place on GSM, Bruno's Iron and Metal, Tall Trees Mobile Home Park, or Pick-A-Part Auto properties, institutional controls (deed restrictions) will be placed on those properties to prevent sensitive uses (as described below) and ensure that allowable use for those properties remains industrial.

Institutional controls are non-engineered mechanisms used to implement land use restrictions to prevent human exposures to hazardous materials, hazardous wastes or constituents, or hazardous substances remaining on the property; to ensure the integrity of the remedial action; and to allow EPA (the CERCLA lead agency) and DTSC and their authorized agents, employees and contractors access to the property to maintain and ensure the effectiveness of the remedial action, as necessary. If hazardous materials, hazardous wastes or constituents, or hazardous substances will remain at the property at levels which are not suitable for unrestricted use of the land, land use restrictions will be required and will be implemented through a Land Use Covenant/Environmental Restriction pursuant to California Civil Code section 1471 and 22 CCR section 67391.1. It shall be entered into by the owner(s) with DTSC, naming EPA as a third-party beneficiary, and recorded in the County records. The land use covenant will carry restrictions such as are necessary to ensure the protectiveness of and prevent damage to or interference with the remedial action. Additionally, monitoring, inspections, and reporting will be conducted to ensure compliance with the land use restrictions. The Covenant shall run with the land and bind all successive owners and occupants. This ROD requires compliance with those substantive portions of 22 CCR section 67391.1 identified as relevant and appropriate and includes a requirement for an implementation and enforcement plan for the institutional controls to ensure the effectiveness of the remedy. Details of the implementation and enforcement plan will be set forth in the remedial design phase.

The Institutional Controls objectives to be achieved through land-use restrictions at the Purity Site pursuant to California Civil Code section 1471 and 22 CCR section 67391.1 include:

- Prohibit sensitive uses such as residential, parks, hospitals, schools, child care facilities, and hospices, if hazardous materials, hazardous waste, or hazardous substances will remain at levels which are not suitable for such uses;

- Other than remediation performed by (or overseen by) the regulatory agencies as approved under this ROD Amendment and/or the OU-1 ROD, prohibit groundwater extraction and/or usage without prior reviews and written approval of EPA;
- Other than remediation performed by (or overseen by) the regulatory agencies as approved under this ROD Amendment and/or the OU-1 ROD, prohibit the alteration, disturbance, or removal of groundwater extraction/monitoring wells and any associated piping and equipment without the review and written approval of EPA;
- Other than remediation performed by the regulatory agencies as approved under this ROD Amendment, such as the clean fill imported as part of the remedial action, prohibit any alteration, disturbance, or excavation of soil and caps without an EPA -approved excavation work plan;
- Any contaminated soils brought to the surface by grading, excavation, trenching, or backfilling shall be managed in accordance with all applicable provisions of state and federal law; and
- Other than remediation performed by (or overseen by) the regulatory agencies as approved under this ROD Amendment, the Owner shall provide EPA written notice at least thirty (30) days prior to any building, filling, grading, or excavating at the property.

Limited residential use in the form of a caretaker apartment will be allowed on the GSM Property if GSM Alternative 3 (Storage Shed and Market Demolition and Reconstruction) is implemented. If GSM Alternative 4 (Purchase Market and Industrial Rehabilitation) is constructed, the restriction against sensitive uses will apply.

More details of the Implementation and Enforcement Plan for Institutional Controls shall be addressed at the Remedial Design phase. The Remedial Design package shall include an Institutional Controls remedial design section to more specifically describe the required implementation and enforcement actions including, but not limited to:

- Requirements for a five-year review;
- Frequency and requirements for periodic monitoring or visual inspections;
- Identification of responsibilities for the owners, EPA, and DTSC for implementation, monitoring, inspections, reporting, and enforcement of the Institutional Controls;
- Reporting results of monitoring and inspections;
- Notification procedures to EPA, DTSC and other regulatory agencies; and
- Recording requirements for the Covenant.

Cleanup and Performance Standards

The cleanup levels for the Purity Property are to excavate and neutralize the entire waste pits that extend to approximately 15 feet bgs. Waste pits shall be identified by the visual presence of sludge and/or a pH of less than 5. The sludge and contaminated soils in the pits will be excavated and mixed with calcium carbonate so that a pH of greater than 5 is achieved and the moisture range is maintained between 8 and 10 percent.

The cleanup levels selected for the portions of the Purity Site outside the Purity Property are the U.S. EPA Region 9 PRGs for industrial or residential use and the TPH concentrations set forth in Table 3. The GSM property will require cleanup to residential PRGs specified in Table 3, unless the property is purchased for industrial rehabilitation in which case the industrial PRGs will apply. The other properties will require cleanup to the industrial PRGs in Table 3. Any property cleaned up to industrial standards must have institutional controls pursuant to the preceding subsection.

Because this remedy may result in hazardous substances, pollutants, or contaminants remaining at the Site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is,

or will be, protective of human health and the environment. Additional five year reviews will be conducted after the initial review if appropriate.

N. Statutory Determinations

Under CERCLA §121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with applicable or relevant and appropriate requirements (unless a statutory waiver is justified), are cost-effective, and use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, and mobility of hazardous wastes as a principal element and a bias against offsite disposal of untreated wastes.

Remedial actions selected under CERCLA must comply with ARARs under federal environmental laws, or where more stringent than the federal requirements, state environmental or facility siting laws. Where a state has been delegated authority to enforce a federal statute, such as RCRA, the delegated portions of the statute are considered to be a federal ARAR.

The ARARs are identified on a site-specific basis from information about site-specific chemicals, specific actions that are being considered, and specific site location features. There are three categories of ARARs: 1) chemical-specific requirements, 2) location-specific requirements, and 3) action specific requirements. EPA may consider non-promulgated federal or state advisories and guidance as to-be-considered (TBC) criteria. Although adoption of TBC criteria is not required, standards based on TBCs that have been selected and adopted in a ROD are legally enforceable as performance standards.

Chemical-specific ARARs are risk-based standards or methodologies that may be applied to site-specific conditions and result in the development of cleanup levels for the COCs at the Purity Site.

Location-specific ARARs are restrictions placed on the chemical contaminant or the remedial activities based on a geographic or ecological feature. Examples of features include wetlands, floodplains, sensitive ecosystems and seismic areas.

Action-specific ARARs are usually technology- or activity-based requirements. They are triggered by the particular remedial activities selected to accomplish a remedy.

ARARs selected in this ROD Amendment supersede those provided in the original OU-2 ROD. A summary of ARARs and adopted TBCs for the selected remedy is presented in Table 5. This table includes a list of changes from the OU-2 ROD.

O. Documentation of Significant Changes from the Proposed Plan

This ROD Amendment does not differ significantly from the Proposed Plan dated April 1, 2005.

P. Summary

EPA is amending the 1992 ROD and 1996 ESD to address acidic sludge and contaminated soils at the Purity Site by neutralizing the former waste pits, excavating soil contamination on adjacent properties, and performing soil vapor extraction. The Proposed Plan for the Purity Site was released for public comment on April 1, 2005 and closed on May 2, 2005. A public hearing was

held on April 13, 2005. Comments received during the public comment period are summarized and responded to in Part III: Responsiveness Summary to this ROD Amendment.

Part III: Responsiveness Summary

The ROD Amendment to which this Responsiveness Summary is attached sets forth EPA's selected remedial action for the soils operable unit (OU-2) for the Purity Oil Sales Superfund Site. The original Record of Decision was signed in September 1992. During the construction of the remedy, acidic sludge began to seep to the surface. The revised remedy selected in the ROD Amendment will neutralize the former waste pits and place the soil under a low-permeability cap. Contaminated soils on the adjacent properties will be excavated and placed under the cap; the excavations will be backfilled with clean soil.

No public comments to the Proposed Plan were provided at the public meeting. Written comments were submitted by Chevron; a summary of the comments and responses is provided below.

Comments were submitted by Chevron in an April 27, 2005 letter. A copy of this letter may be found in the Administrative Record. A summary of the comments and responses are provided below.

A. Comment: ChevronTexaco believes that some aspects of the Remedial Alternative presented in the Proposed Plan are actually groundwater issues and are not appropriate to include in the Proposed Plan for the soils OU-2. Chevron further submits that these aspects of the Proposed Plan are not consistent with existing consent decrees for the site remedies.

A. Response: EPA acknowledges that the primary mechanism to address the groundwater contamination is through OU-1 related activities. However, because groundwater contamination originated from surface releases and a significant amount of contaminated soil remains at the Site, an integral part of the groundwater remedy will include preventing the remaining contaminated soil from further contaminating the groundwater (i.e., source control). For this Site, control of soil source material will be accomplished through the OU-2 remedy and EPA believes that references to groundwater contamination and cleanup are correctly included in the OU-2 Proposed Plan and ROD Amendment. Any specific activities directly related to groundwater will be conducted under the OU-1 remedy process.

B. Chevron's Comment on Proposed Plan Element 1 (Neutralization): Neutralization of the acid sludge contained in the waste pit disposal area is consistent with discussions between ChevronTexaco and EPA over the last two years. Acid sludge is typically found in the waste pit disposal areas at depths of 13 feet bgs and above. Accordingly, ChevronTexaco concurs with Proposed Plan Element 1.

B. Response: Concurrence is noted. Historical information for the Site does indicate acid sludge may be found at depths of up to 15 feet bgs; therefore, the selected remedial action includes neutralization to the full depth of acid sludge, which may exceed 13 feet bgs.

C. Chevron's Comment on Proposed Plan Element 2 (Low-Permeability Cap): Construction of a low-permeability cap over the waste pit disposal area to reduce surface water from infiltrating through the waste material is consistent with the discussions that ChevronTexaco and USEPA have had over the last two years. On page 10 of the Proposed Plan, USEPA states that it "continues to support a final cover that would meet the RCRA closure performance standards for a final cover." ChevronTexaco's support for a low permeability cap is based on our understanding that such a cap is consistent with this USEPA statement. Further, consistent with discussions with USEPA, our support assumes that the low permeability cap would consist of six inches of sand placed above the neutralized sludge/soil sub-base, a geo-composite clay (GCL) liner, a drainage layer, and a 2-foot vegetative layer.

C. Response: EPA notes the function of the low-permeability cap (intended to meet the RCRA performance standards) is also to prevent human or ecological exposure to the neutralized waste material, in addition to preventing the infiltration of surface water.

D1 Chevron's Comment on Proposed Plan Element 3 (Excavation of Offsite Contamination): Excavation of offsite sludge and contaminated soil found on four neighboring properties has been discussed with USEPA over the last two years. All offsite sludge with a pH less than 4 will be excavated, neutralized and managed beneath the low-permeability cap. If future use of the GSM property includes its operation as a convenience market (i.e., the present use continues), impacted soils on the property will be excavated until the soils achieve the Region 9 residential use PRGs and 2,300 mg/kg TPH, or an excavation depth of 7 feet bgs is achieved. Impacted soils on properties that currently permit industrial use will be excavated until the soils achieve the Region 9 industrial use PRGs and 10,000 mg/kg TPH, or an excavation depth of 4 feet bgs is achieved. The excavation of sludge and impacted soils that meets these definitions is consistent with the discussions that ChevronTexaco and USEPA have had over the last two years. ChevronTexaco also agrees that all excavations will be backfilled with clean soil.

D1 Response: EPA notes Chevron's concurrence.

D2: Chevron's Comment on Proposed Plan Element 3 (Excavation of Offsite Contamination): In previous discussions, USEPA has presented three alternatives as potentially viable to address the GSM soil impacts. These viable alternatives are presented in the Proposed Plan as GSM Alternative 2 (Storage Shed Demolition, Excavation and Reconstruction and Installation of a Ventilation System), GSM Alternative 3 (Storage Shed and Market Demolition and Reconstruction) and GSM Alternative 4 (Purchase of the GSM Property and Industrial Rehabilitation). Previously, ChevronTexaco indicated that additional data would be required to determine which alternative was the most suitable for moving forward at the Golden State Market. The Proposed Plan has eliminated GSM Alternative 2 without the review of any additional data, and instead USEPA has indicated a preferred remedy as a combination of GSM Alternative 3 and GSM Alternative 4, again without the benefit of the development and review of additional data. ChevronTexaco disagrees with this approach and requests that GSM Alternative 2 be retained as a potential alternative for purposes of the Proposed Plan. GSM Alternative 2 can be evaluated and possibly eliminated in the future if additional data suggests that impacted soils are present beneath Golden State Market Building and the soil clean-up criteria cannot be achieved solely by excavating soils beneath the Storage Shed.

D2: Response: EPA analyzed GSM Alternative 2 according to the nine criteria specified in CERCLA. This analysis showed the alternative did not fully meet the criteria. GSM Alternatives 3 and 4 fully meet the criteria and, therefore, are the selected alternatives in this ROD Amendment.

E: Chevron's Comment on Proposed Plan Element 4 (Groundwater Monitoring Program): The Proposed Plan is designed to describe changes to the OU-2 Soil Remedy at the Purity Oil Sales Superfund Site. Page 6 of the Proposed Plan describes the overall Onsite and Offsite Objectives for remediation of the Purity Oil Sales Superfund Site that are being addressed by both the OU-1 Groundwater and OU-2 Soil remedies. Specifically, the Onsite and Offsite objective that specifies "prevent migration of contaminated groundwater to local domestic or irrigation wells" can only be addressed by the OU-1 remedy components. The Groundwater Monitoring Program is a component of the OU-1 remedy. Consequently, ChevronTexaco does not believe it is appropriate for USEPA to include the quarterly monitoring program in the Proposed Plan as it is duplicative of the existing requirements of the current groundwater remedy. Further, ChevronTexaco suggests that Onsite Objective 4 and Offsite Objectives 4 and 5 are not appropriate Remedial Action Objectives, as part of OU-2 and this Proposed Plan. Such provisions are not consistent with existing Consent Decrees.

USEPA and ChevronTexaco agree that additional work needs to be conducted to evaluate alternatives that could be implemented to improve the current groundwater treatment system that is in operation to address source area contamination. The work is being conducted in accordance with the OU-1 Improvement Alternatives Evaluation Work Plan that has been approved by USEPA. Furthermore, USEPA and ChevronTexaco agree that groundwater with de minimis concentrations of constituents of concern and located outside of the source area is best addressed under a monitored natural attenuation remedy. ChevronTexaco proposes to revise the current groundwater monitoring program to capture new data quality objectives for monitored natural attenuation for wells located outside of the source area. In addition, the revised groundwater monitoring program will capture modifications designed to improve the quality of the data collected within the source area that is the focus of the OU-1 Improvement Alternatives Evaluation Study.

E: Response: EPA disagrees that prevention of migration of contaminated groundwater to local domestic or irrigation wells can only be addressed by the OU-1 remedy components. As stated above, source control is an integral part of the groundwater remedy and source control will be accomplished through the OU-2 remedy. Additionally, EPA has not agreed that groundwater contamination can be addressed through a monitored natural attenuation remedy. EPA will review results of the OU-1 Improvement Alternatives Evaluation Study and discuss OU-1 remedy modifications at that time. EPA agrees that groundwater monitoring is to be conducted to meet the remedial action objectives of the OU-1 ROD but that the effectiveness of the OU-2 soil remedy will also need to be monitored through the groundwater monitoring program.

F: Chevron's Comment on Proposed Plan Element 5 (SVE and Vadose Zone Monitoring System): ChevronTexaco concurs with this element and states it will install the SVE system and associated vadose zone monitoring wells in accordance with the May 31, 1996 100% OU-2 design report for the Purity Site.

F: Response: Chevron proposes in its September 30, 2005 OU-2 Remedial Action Work Plan to install an SVE system that differs substantially from the May 31, 1996 100% OU-2 Design Report for the Purity Site. The final design of the SVE system is subject to review by EPA and will be established in the approved Remedial Action Work Plan.

G: Chevron's Comment on Proposed Plan Element 6 (Institutional Controls): USEPA and ChevronTexaco have discussed remediation of impacted soils to industrial use standards as referenced in Proposed Plan Element 6 for the Pick-a-Part, Bruno's, and Tall Trees properties. Since the areas of these properties that have been impacted by contamination originating from the Purity site will be remediated to industrial use standards, ChevronTexaco does not believe it is necessary to impose deed restrictions on these properties. In addition, local zoning ordinances do not allow for residential use of these properties. Therefore, ChevronTexaco disagrees that it is obligated to place deed restrictions on such properties as it is an unnecessary and unreasonable requirement. In addition, in view of the historical use of these properties by their owners, it is unlikely that the properties would meet residential standards regardless of any impact from the Purity Site. Placing such an obligation on ChevronTexaco is unduly burdensome, and is not consistent with existing Consent Decrees. Therefore, ChevronTexaco recommends using the local zoning ordinances as an institutional control for the adjacent industrial properties.

G: Response: Institutional Controls such as deed restrictions are non-engineered instruments that, among other functions, minimize potential for human exposure to contamination. CERCLA requires institutional controls for sites that are unsuitable for unrestricted use and unrestricted exposure. Zoning ordinances are subject to change and do not provide enforceable assurances between the property owner and EPA (or DTSC) that sensitive uses will not occur on the property. Enforceable land use covenants are also necessary to comply with state ARARs. Therefore, EPA maintains deed restrictions are an integral part of the remedy.

H. Chevron's Comment on Proposed Plan Element 7 (Additional Soil and Soil Gas Samples): USEPA and ChevronTexaco have been discussing elements of work plans associated with the excavation of impacted offsite soils. As part of these discussions, ChevronTexaco has submitted to USEPA a proposed soil sampling plan for documenting the excavation of impacted offsite soils to ensure that the cleanup criteria are achieved. USEPA has provided ChevronTexaco with comments on the proposed soil sampling plan which requested that the soil samples be collected from the floor of the excavation in the event that soil cleanup criteria were not achieved at a depth of 7 feet bgs for the GSM (assuming its present use as a convenience market continues) and at a depth of 4 feet bgs for the other adjacent industrial properties. In addition, soil gas sampling was discussed for areas of the GSM where subsurface soil samples could not be collected due to the presence of the building concrete floor slab. ChevronTexaco believes that the soil and soil gas sampling as previously discussed addresses Proposed Plan Element 7 and that no additional work plans are required. Consequently, ChevronTexaco specifically disagrees with any requirement to take samples to the top of the water table as an unnecessary and unreasonable requirement for OU-2 and the Proposed Plan as it is more appropriately addressed by OU-1 and further groundwater investigations. Also it is not consistent with the requirements of existing Consent Decrees.

H. Response: Because one of the primary objectives of the OU-2 remedy is source control for groundwater contamination and the contaminated areas on adjoining properties are not part of the area to be capped, EPA believes that an assessment of offsite vadose zone soils that may impact groundwater or indoor air is necessary to establish an effective soils remedy.

Table 1
CONTAMINANTS OF CONCERN AT THE PURITY OIL SITE

Acetone	1,1-Dichloroethene
Acenapthylene	1,2-Dichloroethane
Aldrin	Dieldrin
Antimony	Diethyl phthalate
Aroclor 1242	Endosulfan
Aroclor 1248	Ethylbenzene
Aroclor 1254	Gamma-BHC (Lindane)
Aroclor 1260	Heptachlor
Arsenic	Heptachlor epoxide
Barium	**Indeno(1,2,-3-cd)pyrene**
Benzene	Lead
Benzo(a)anthracene	Methylene chloride
Benzo(a)pyrene	**2-Methylnaphthalene**
Benzo(b)fluoranthene	
Benzoic Acid	Mercury
Benzo(k)fluoranthene	4-Methyl-2-pentanone
Beryillium	2-Methyl-phenol
Beta-BHC	4-Methyl phenol
Bis(2-ethylhexyl)phthalate	Napthalene
2-Butanone	N-nitrosodiphenylamine
Cadmium	Phenol
Carbon disulfide	Selenium
Carbon tetrachloride	Silver
Chlorobenzene	Styrene
Chloroform	Tetrachloroethane
Chrysene	Toluene
Cyanide	1,1,1-Trichloroethane
4,4'-DDD	1,1,2-Trichloroethane
4,4'-DDE	Trichloroethene
4,4'-DDT	Vanadium
Di-n-butyl phthalate	Vinyl chloride
Dibenz(a,h)anthracene	Xylenes
1,1-Dichloroethane	Zinc

Note: **Bold** contaminants are chemicals added to the COC list since the 1992 ROD.

TABLE 2
SOIL DATA STATISTICAL SUMMARY (0 TO 10 FEET BELOW GROUND SURFACE)
OPERABLE UNIT 2 ROD AMENDMENT
PURITY OIL SALES SUPERFUND SITE, FRESNO, CALIFORNIA

CAS Number	Chemical	Minimum Concentration (qualifier)	Maximum Concentration (qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Site Concentrations Greater Than Background?(a)
120821	1,2,4-Trichlorobenzene	4.6E-01 J	1.1E+00 J	mg/kg	PET1990	5 / 126	0.089 - 23	--
95501	1,2-Dichlorobenzene	1.0E-02	2.2E+01	mg/kg	PET2130	10 / 135	0.01 - 20	--
106467	1,4-Dichlorobenzene	5.0E-03	1.1E+00	mg/kg	PET1960	4 / 135	0.01 - 21	--
91576	2-Methylnaphthalene	7.6E-01	1.4E+02	mg/kg	PET1990	18 / 126	0.074 - 29	--
83329	Acenaphthylene	2.9E-02	2.2E+01	mg/kg	G-E-04	27 / 135	0.024 - 15.8	--
120127	Anthracene	1.2E-01 J	1.5E+01 J	mg/kg	G-W-02	25 / 135	0.0014 - 1.2	--
56553	Benzo(a)anthracene	6.6E-03 J	8.4E+00 J	mg/kg	G-E-09	36 / 135	0.0009 - 0.2	--
50328	Benzo(a)pyrene	6.9E-03	8.3E+00	mg/kg	G-W-02	26 / 135	0.0009 - 1.2	--
205992	Benzo(b)fluoranthene	2.8E-03	1.9E+01	mg/kg	G-W-02	62 / 135	0.0011 - 1.1	--
191242	Benzo(g,h,i)perylene	1.7E-02 J	6.0E+00 J	mg/kg	G-E-09	20 / 135	0.0017 - 2.1	--
207089	Benzo(k)fluoranthene	6.3E-03 J	1.1E+01 J	mg/kg	G-W-02	41 / 135	0.0009 - 0.34	--
108907	Chlorobenzene	2.6E-03 J	9.1E-01 J	mg/kg	PET1990	17 / 146	0.0002 - 0.35	--
218019	Chrysene	4.0E-03 J	2.7E+01 J	mg/kg	G-W-02	62 / 135	0.0009 - 0.2	--
53703	Dibenz(a,h)anthracene	2.4E-01 J	5.0E+00 J	mg/kg	G-E-04	8 / 135	0.0017 - 2.1	--
206440	Fluoranthene	8.1E-03	3.3E+01	mg/kg	G-E-09	56 / 135	0.0018 - 1.39	--
86737	Fluorene	8.1E-02	7.4E+00	mg/kg	G-W-02	11 / 135	0.0018 - 2.3	--
193395	Indeno(1,2,3-cd)pyrene	1.0E-02	4.1E+00	mg/kg	G-W-02	31 / 135	0.0007 - 0.8	--
91203	Naphthalene	1.8E-02	6.4E+01	mg/kg	PET1990	23 / 135	0.01 - 7.7	--
85018	Phenanthrene	2.6E-03	4.8E+01	mg/kg	G-W-02	68 / 135	0.001 - 1	--
129000	Pyrene	8.6E-03 J	2.8E+01 J	mg/kg	G-E-09	40 / 135	0.0012 - 2.2	--
72548	4,4'-DDD	2.1E-03	2.1E-01	mg/kg	G-F-Y5	22 / 141	0.001 - 1.3	--
72559	4,4'-DDE	3.1E-03 J	3.1E-01 J	mg/kg	G-E-06	36 / 143	0.0007 - 1	--
50293	4,4'-DDT	1.4E-03 J	6.1E-01 J	mg/kg	PET1990	53 / 143	0.0004 - 1.3	--
309002	Aldrin	2.0E-03	4.3E-03	mg/kg	GSSB05	3 / 141	0.0005 - 0.55	--
5103719	Alpha-chlordane	1.3E-03 J	7.1E-03 J	mg/kg	P-S-08	14 / 141	0.0002 - 0.19	--
12674112	Aroclor-1016	9.6E-01 J	5.2E+00 J	mg/kg	PET1990	5 / 141	0.0029 - 18	--
53469216	Aroclor-1242	5.2E-01	5.2E-01	mg/kg	BSB07	1 / 141	0.016 - 17	--

TABLE 2
SOIL DATA STATISTICAL SUMMARY (0 TO 10 FEET BELOW GROUND SURFACE)
OPERABLE UNIT 2 ROD AMENDMENT
PURITY OIL SALES SUPERFUND SITE, FRESNO, CALIFORNIA

CAS Number	Chemical	Minimum Concentration (qualifier)	Maximum Concentration (qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Site Concentrations Greater Than Background?(a)
11096825	Aroclor-1260	2.7E-02 J	4.5E+00 J	mg/kg	PET1990	16 / 141	0.0075 - 9.4	--
11097691	Aroclor-1254	8.0E-02	1.2E+00	mg/kg	PC-W-01	7 / 141	0.0089 - 9.5	--
319846	Alpha-BHC	3.5E-03 J	7.7E-02 J	mg/kg	G-F-Y3	18 / 143	0.0002 - 0.23	--
319857	Beta-BHC	2.8E-03 J	5.6E+00 J	mg/kg	G-W-02	16 / 143	0.0004 - 1	--
60571	Dieldrin	3.1E-03 J	2.1E-01 J	mg/kg	TTTP02	10 / 141	0.0004 - 1.3	--
959988	Endosulfan I	5.4E-02 J	1.5E-01 J	mg/kg	PPTP03	3 / 141	0.0003 - 0.83	--
33213659	Endosulfan II	4.2E-03	1.3E+00	mg/kg	G-W-02	10 / 142	0.0004 - 0.4	--
1031078	Endosulfan sulfate	1.1E-02 J	1.8E-01 J	mg/kg	G-F-Y3	7 / 142	0.0004 - 0.46	--
72208	Endrin	9.0E-03 J	1.0E+00 J	mg/kg	G-F-Y3	3 / 142	0.0004 - 0.43	--
7421934	Endrin aldehyde	2.5E-03	1.3E+00	mg/kg	G-E-06	38 / 143	0.0004 - 0.45	--
53494705	Endrin ketone	1.8E-03 J	7.0E-01 J	mg/kg	G-W-02	5 / 141	0.0005 - 0.49	--
58899	Gamma-BHC (Lindane)	1.9E-02	2.1E-02	mg/kg	TTTP02	2 / 141	0.0003 - 0.3	--
5103742	Gamma-chlordane	1.4E-03 J	6.8E-02 J	mg/kg	G-E-01	21 / 141	0.0002 - 0.66	--
1024573	Heptachlor epoxide	8.0E-04 J	1.1E-01 J	mg/kg	G-E-06	13 / 143	0.0002 - 0.19	--
72435	Methoxychlor	2.0E-02 J	1.2E+00 J	mg/kg	G-F-Y3	17 / 143	0.0037 - 4	--
71556	1,1,1-Trichloroethane	7.2E-03 J	7.2E-03 J	mg/kg	PET1080	1 / 146	0.0002 - 0.35	--
79345	1,1,2,2-Tetrachloroethane	4.0E-01	7.9E-01	mg/kg	PET2170	3 / 146	0.0002 - 0.43	--
540590	1,2-Dichloroethene (Total)	1.5E-03 J	2.3E-02 J	mg/kg	G-F-Z2	7 / 133	0.0002 - 0.57	--
78933	2-Butanone	9.0E-03	6.2E-02	mg/kg	G-F-Z2	6 / 146	0.0014 - 0.89	--
108101	4-Methyl-2-pentanone	4.0E-02 J	1.5E+00 J	mg/kg	PET2130	3 / 133	0.0008 - 1.6	--
67641	Acetone	6.0E-03 J	4.4E+00 J	mg/kg	PET2130	20 / 143	0.0026 - 15	--
71432	Benzene	9.0E-04 J	9.2E-01 J	mg/kg	G-F-Y4	24 / 146	0.0002 - 0.35	--
74839	Bromomethane	1.7E-02 J	1.7E-02 J	mg/kg	G-E-05	1 / 141	0.0003 - 2.1	--
156592	cis-1,2-Dichloroethene	2.0E-02	2.0E-02	mg/kg	GSSB01	1 / 13	0.01 - 0.01	--
75150	Carbon disulfide	1.1E-03	2.9E-01	mg/kg	PET2150	6 / 139	0.0001 - 0.32	--
132649	Dibenzofuran	8.6E-01	9.4E-01	mg/kg	PET1960	2 / 126	0.072 - 26	--
100414	Ethylbenzene	1.5E-03 J	8.0E+00 J	mg/kg	PET1990	58 / 146	0.0001 - 0.27	--
108383	m,p-Xylene	1.0E-02	6.0E-02	mg/kg	BSB07	3 / 13	0.01 - 0.01	--

TABLE 2
SOIL DATA STATISTICAL SUMMARY (0 TO 10 FEET BELOW GROUND SURFACE)
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CAS Number	Chemical	Minimum Concentration (qualifier)	Maximum Concentration (qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Site Concentrations Greater Than Background?(a)
75092	Methylene chloride	3.9E-03	1.2E-02	mg/kg	G-F-Y1	2 / 146	0.0005 - 5.8	--
95476	o-Xylene	9.0E-03 J	2.4E-01 J	mg/kg	GSSB01	4 / 13	0.01 - 0.01	--
127184	Tetrachloroethene	1.7E-03 J	2.8E+00 J	mg/kg	PET1990	50 / 146	0.0002 - 0.32	--
108883	Toluene	7.0E-04	8.1E+00	mg/kg	G-F-Y4	47 / 146	0.0002 - 0.32	--
79016	Trichloroethene	1.2E-03 J	3.2E+00 J	mg/kg	PET1990	44 / 146	0.0002 - 0.32	--
1330207	Xylene (Total)	1.6E-03	2.7E+01	mg/kg	G-F-Y4	53 / 133	0.0003 - 0.31	--
Inorganics (Metals)								
7429905	Aluminum	3.4E+03 J	2.1E+04 J	mg/kg	P-S-08	129 / 129	--	--
7440360	Antimony	3.5E+00 J	9.9E+00 J	mg/kg	PET2050	14 / 121	2.21 - 5.4	--
7440382	Arsenic	1.1E+00	1.2E+01	mg/kg	G-W-02	114 / 129	1.2 - 3.22	Yes
7440393	Barium	2.6E+01	2.7E+03	mg/kg	G-F-X4	129 / 129	--	Yes
7440417	Beryllium	8.6E-02 J	4.8E-01 J	mg/kg	PC-W-04	92 / 129	0.125 - 0.387	--
7440439	Cadmium	2.4E-01	2.7E+01	mg/kg	G-W-02	31 / 129	0.201 - 0.504	--
7440702	Calcium	8.3E+02	2.9E+04	mg/kg	G-F-Y6	123 / 123	--	-- (b)
7440473	Chromium	2.8E+00	8.4E+01	mg/kg	P-S-08	129 / 129	--	Yes
7440484	Cobalt	1.8E+00	1.8E+01	mg/kg	G-E-10	126 / 129	1.75 - 3.33	--
7440508	Copper	3.8E+00	4.6E+02	mg/kg	G-F-Z5	129 / 129	--	Yes
57125	Cyanide	6.4E-01	1.6E+00	mg/kg	G-F-Z6	3 / 122	0.122 - 0.187	Yes
7439896	Iron	5.6E+03 J	3.6E+04 J	mg/kg	G-W-02	129 / 129	--	--
7439921	Lead	1.8E+00	7.3E+03	mg/kg	G-F-X4	133 / 142	2.31 - 20	Yes
7439965	Manganese	6.7E+01 J	9.1E+02 J	mg/kg	PET2170	129 / 129	--	Yes
7439954	Magnesium	1.2E+03	8.1E+03	mg/kg	P-S-05	123 / 123	-	-- (b)
7439976	Mercury	2.2E-02	8.9E-01	mg/kg	G-W-02	18 / 129	0.02 - 0.0405	Yes
7439987	Molybdenum	1.2E+00	2.7E+00	mg/kg	PET1940	23 / 40	0.775 - 1.52	--
7440020	Nickel	3.9E+00	1.1E+02	mg/kg	PC-W-04	128 / 129	3.84 - 3.84	--
7440097	Potassium	5.4E+02	3.7E+03	mg/kg	P-S-02	121 / 123	613 - 1,030	-- (b)
7782492	Selenium	4.5E-01 J	8.4E-01 J	mg/kg	G-W-02	2 / 129	0.299 - 0.609	--
7440224	Silver	4.5E-01 J	2.2E+00 J	mg/kg	PET1960	26 / 129	0.429 - 1.98	--
7440235	Sodium	7.7E+01	7.8E+02	mg/kg	G-F-Y4	118 / 123	101 - 140	-- (b)

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PURITY OIL SALES SUPERFUND SITE, FRESNO, CALIFORNIA

CAS Number	Chemical	Minimum Concentration (qualifier)	Maximum Concentration (qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Site Concentrations Greater Than Background?(a)
7440280	Thallium	5.7E-01 J	1.7E+00 J	mg/kg	PET1940	51 / 129	0.32 - 1.85	--
7440622	Vanadium	1.0E+01	5.6E+01	mg/kg	PET1940	129 / 129	--	--
7440666	Zinc	1.2E+01	3.6E+02	mg/kg	PET2130	129 / 129	--	Yes

TABLE 2
SOIL DATA STATISTICAL SUMMARY (0 TO 10 FEET BELOW GROUND SURFACE)
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PURITY OIL SALES SUPERFUND SITE, FRESNO, CALIFORNIA

CAS Number	Chemical	Minimum Concentration (qualifier)	Maximum Concentration (qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Site Concentrations Greater Than Background?(a)
[illegible]								
--	Diesel Range Organics	6.0E+00 J	3.1E+03 J	mg/kg	BSB07	3 / 15	5 - 8,000	--
--	Gasoline Range Organics	6.4E-02 J	4.1E+02 J	mg/kg	GSSB01	9 / 15	5 - 6	--
--	Motor Oil Range Organics	3.1E+02	3.4E+04	mg/kg	GSSB02	11 / 15	20 - 30	--

Notes:

--	Not applicable
BHC	Hexachlorocyclohexane
CAS	Chemical Abstract Services
COPC	*Chemical of Potential Concern*
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
J	Estimated value
mg/kg	Milligram per kilogram
a	Background concentrations are an average of nine designated background sample results. Inorganic chemicals with a maximum detected concentration less than the average background concentration were not evaluated further in the risk evaulation.
b	Essential human nutrient

TABLE 3
RESIDENTIAL AND INDUSTRIAL PRELIMINARY REMEDIATION GOALS
SELECTED AS CLEANUP LEVELS FOR THE PURITY OIL SITE
OPERABLE UNIT 2 ROD AMENDMENT
PURITY OIL SALES SUPERFUND SITE, FRESNO, CALIFORNIA

Analyte	Residential PRG [a] (mg/kg)		Industrial PRG [a] (mg/kg)	
	Cancer	Noncancer	Cancer	Noncancer
1,1,1-Trichloroethane	–	2.0E+03	–	6.9E+03
1,1,2,2-Tetrachloroethane	4.1E-01	1.0E+03	9.3E-01	4.0E+03
1,2,4-Trichlorobenzene	–	6.2E+01	–	2.2E+02
1,2-Dichlorobenzene	–	1.1E+03	–	4.1E+03
1,2-Dichloroethene (Total) [b]	–	4.3E+01	–	1.5E+02
1,4-Dichlorobenzene	3.4E+00	1.6E+03	7.9E+00	1.0E+04
2-Butanone	–	2.2E+04	–	1.1E+05
2-Methylnaphthalene [c,d]	1.7E+00	5.6E+01	4.2E+00	1.9E+02
4,4'-DDD	2.4E+00	–	1.0E+01	–
4,4'-DDE	1.7E+00	–	7.0E+00	–
4,4'-DDT	1.7E+00	3.6E+01	7.0E+00	4.3E+02
4-Methyl-2-pentanone	–	5.3E+03	–	4.7E+04
Acenaphthylene [c,d]	1.7E+00	5.6E+01	4.2E+00	1.9E+02
Acetone	–	1.4E+04	–	5.4E+04
Aldrin	2.9E-02	1.8E+00	1.0E-01	1.8E+01
Alpha-BHC	9.0E-02	3.5E+01	3.6E-01	4.0E+02
Alpha-chlordane [e]	1.6E+00	3.5E+01	6.5E+00	4.0E+02
Aluminum	–	7.6E+04	–	9.2E+05
Anthracene	–	2.2E+04	–	2.4E+05
Antimony	–	3.1E+01	–	4.1E+02
Aroclor-1016	6.3E+00	3.9E+00	2.1E+01	3.7E+01
Aroclor-1242 [f]	2.2E-01	1.1E+00	7.4E-01	1.1E+01
Aroclor-1254	2.2E-01	1.1E+00	7.4E-01	1.1E+01
Aroclor-1260 [f]	2.2E-01	1.1E+00	7.4E-01	1.1E+01
Arsenic [d]	6.2E-02	2.2E+01	2.5E-01	2.6E+02
Barium	–	5.4E+03	–	6.7E+04
Benzene	6.4E-01	3.3E+01	1.4E+00	1.2E+02
Benzo(a)anthracene	6.2E-01	–	2.1E+00	–
Benzo(a)pyrene	6.2E-02	–	2.1E-01	–
Benzo(b)fluoranthene	6.2E-01	–	2.1E+00	–
Benzo(g,h,i)perylene [g]	–	2.3E+03	–	2.9E+04
Benzo(k)fluoranthene [d]	3.8E-01	–	1.3E+00	–
Beryllium	1.1E+03	1.5E+02	2.2E+03	1.9E+03
Beta-BHC	3.2E-01	1.4E+01	1.3E+00	1.6E+02
Bromomethane	–	3.9E+00	–	1.3E+01
Cadmium	1.4E+03	3.7E+01	3.0E+03	4.5E+02
Carbon disulfide	–	3.6E+02	–	1.2E+03
Chlorobenzene	–	1.5E+02	–	5.3E+02
Chromium [h]	–	1.2E+05	–	1.5E+06

TABLE 3
RESIDENTIAL AND INDUSTRIAL PRELIMINARY REMEDIATION GOALS
SELECTED AS CLEANUP LEVELS FOR THE PURITY OIL SITE
OPERABLE UNIT 2 ROD AMENDMENT
PURITY OIL SALES SUPERFUND SITE, FRESNO, CALIFORNIA

Analyte	Residential PRG [a] (mg/kg)		Industrial PRG [a] (mg/kg)	
	Cancer	Noncancer	Cancer	Noncancer
Chrysene [d]	3.8E+00	--	1.3E+01	--
cis-1,2-Dichloroethene	--	4.3E+01	--	1.5E+02
Cobalt	9.0E+02	1.4E+03	1.9E+03	1.3E+04
Copper	--	3.1E+03	--	4.1E+04
Cyanide [i]	--	1.2E+03	--	1.2E+04
Dibenz(a,h)anthracene	6.2E-02	--	2.1E-01	--
Dibenzofuran	--	1.5E+02	--	1.6E+03
Dieldrin	3.0E-02	3.1E+00	1.1E-01	3.1E+01
Endosulfan I [j]	--	3.7E+02	--	3.7E+03
Endosulfan II [j]	--	3.7E+02	--	3.7E+03
Endosulfan sulfate [j]	--	3.7E+02	--	3.7E+03
Endrin	--	1.8E+01	--	1.8E+02
Endrin aldehyde [k]	--	1.8E+01	--	1.8E+02
Endrin ketone [k]	--	1.8E+01	--	1.8E+02
Ethylbenzene	--	1.9E+03	--	7.4E+03
Fluoranthene	--	2.3E+03	--	2.2E+04
Fluorene	--	2.7E+03	--	2.6E+04
Gamma-BHC (Lindane)	4.4E-01	2.1E+01	1.7E+00	2.4E+02
Gamma-chlordane [e]	1.6E+00	3.5E+01	6.5E+00	4.0E+02
Heptachlor	1.1E-01	3.1E+01	3.8E-01	3.1E+02
Heptachlor epoxide	5.3E-02	7.9E-01	1.9E-01	8.0E+00
Indeno(1,2,3-cd)pyrene	6.2E-01	--	2.1E+00	--
Iron	--	2.3E+04	--	3.1E+05
Lead [l]	--	4.0E+02	--	8.0E+02
m,p-Xylene [m]	--	2.7E+02	--	9.0E+02
Manganese	--	1.8E+03	--	1.9E+04
Mercury	--	2.3E+01	--	3.1E+02
Methoxychlor	--	3.1E+02	--	3.1E+03
Methylene chloride	9.1E+00	2.0E+03	2.1E+01	9.3E+03
Molybdenum	--	3.9E+02	--	5.1E+03
Naphthalene [d]	1.7E+00	5.6E+01	4.2E+00	1.9E+02
Nickel	--	1.6E+03	--	2.0E+04
o-Xylene [m]	--	2.7E+02	--	9.0E+02
Phenanthrene [n]	--	2.2E+04	--	2.4E+05
Pyrene	--	2.3E+03	--	2.9E+04
Selenium	--	3.9E+02	--	5.1E+03
Silver	--	3.9E+02	--	5.1E+03
Tetrachloroethene	4.8E-01	3.8E+01	1.3E+00	1.3E+02
Thallium	--	5.2E+00	--	6.7E+01

TABLE 3
RESIDENTIAL AND INDUSTRIAL PRELIMINARY REMEDIATION GOALS SELECTED AS CLEANUP LEVELS FOR THE PURITY OIL SITE OPERABLE UNIT 2 ROD AMENDMENT PURITY OIL SALES SUPERFUND SITE, FRESNO, CALIFORNIA

Analyte	Residential PRG [a] (mg/kg)		Industrial PRG [a] (mg/kg)	
	Cancer	Noncancer	Cancer	Noncancer
Toluene	--	6.6E+02	--	2.2E+03
TPH	--	2.3E+03	--	1.0E+04
Trichloroethene	5.3E-02	1.6E+01	1.1E-01	1.1E+02
Vanadium	--	7.8E+01	--	1.0E+03
Xylene (Total) [m]	--	2.7E+02	--	9.0E+02
Zinc	--	2.3E+04	--	3.1E+05

Notes:

--	Cancer or noncancer toxicity value not available
BHC	Hexachlorocyclohexane
Cal/EPA	California Environmental Protection Agency
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
DDT	Dichlorodiphenyltrichloroethane
EPA	U.S. Environmental Protection Agency
mg/kg	Milligram per kilogram
PRG	Preliminary remediation goal
a	Values shown are EPA Region IX residential or industrial soil PRGs (EPA 2004a) unless otherwise noted
b	cis-1,2-Dichloroethene used as surrogate
c	Napthalene used as surrogate
d	Cal/EPA-modified PRG (Cal/EPA 2004)
e	Chlordane used as surrogate
f	Aroclor-1254 used as surrogate
g	Pyrene used as surrogate
h	Chromium III used as surrogate
i	Free cyanide used as surrogate
j	Endosulfan used as surrogate
k	Endrin used as surrogate
l	Lead evaluated using LeadSpread model
m	Xylenes used as surrogate
n	Anthracene used as surrogate

Table 4
Selected Remedy Cost Estimate

CAPITAL COSTS		
Item Description	**Item Cost**	
Soil/liquid neutralized with Calcium carbonate and solidified with Portland Cement	$	3,280,000
Impermeable cap	$	173,000
Air Monitoring	$	866,667
Escalation 2005 to 2006	$	215,000
Revised Capital Costs in Proposed Plan (2006 $)	*$*	*4,515,000*
SVE System, Vadose Zone Monitoring, and Abandoning MWs	$	751,888
Soil/gas sampling on adjacent properties between excavation & water table	$	150,000
Land Use Covenant Implementation and Enforcement Plan	$	25,000
Subtotal Capital Costs ($2006)	$	5,441,888
Administrative Costs (15% of Subtotal)	$	816,283
Total Capital Costs ($2006)	$	6,258,171
Cost Estimate Contingency (15%)	$	938,726
Total Capital Costs ($2006)	**$**	**7,196,897**

O&M PRESENT VALUE ANALYSIS		
Cost Type	**Present Value**	
Capital Costs	$	7,196,897
Closure Cover System (Annual O&M - Years 1 through 30)	$	2,382,912
SVE System (Annual O&M - Years 1 through 10)	$	1,120,171
SVE System Shutdown (Periodic at Year 10)	$	58,999.25
Vadose Zone Monitoring (Annual O&M - years 1 and 2)	$	422,371
Vadose Zone Monitoring (Annual O&M - Years 10 through 15)	$	111,396
Land Use Controls (Annual O&M, Year 1 through 30)	$	120,934
5-Year Reviews (Periodic - Years 1 through 30)	$	10,007.38
Total Present Value	**$**	**11,423,687**

Table 5

Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria Selected for the Purity Oil Sales, Inc. Superfund Site, Malaga, CA*

Requirements	Description	Comment	A / R&A / TBC
	CHEMICAL-SPECIFIC ARARs		
Hazardous Waste Identification 22 CCR 66261.1 to 66261.126	Regulations set forth under California's hazardous waste program (RCRA authorized state) are generally applicable to CERCLA cleanup actions when the following requirements are met: 1. The waste meets the RCRA criteria for a listed or characteristic hazardous waste and 2. The waste is treated, stored, or disposed (as defined in 40 CFR 260.10) after the effective date of the RCRA requirement.	These regulations are used to determine whether RCRA hazardous waste is present at the Site.	Applicable (Applicable in prior ROD)
United States Environmental Protection Agency (USEPA) Region IX Preliminary Remediation Goals (PRGs) as revised December 28, 2004.	PRGs are tools for evaluating and cleaning up contaminated sites. They are risk-based concentrations combining exposure information and EPA toxicity data.	The PRGs listed in Table 3 are selected as soil cleanup levels in this ROD. Industrial PRGs will be used unless GSM Alternative 3 is implemented, in which case residential PRGs will be used for the GSM property.	To Be Considered, now being adopted as a performance standard
SWRCB Resolution 68-16 Statement of Policy with Respect to Maintaining High Quality of Waters in California Water Code §13140	Under the Antidegradation Policy as set forth in State Board Resolution No. 68-16, whenever the existing quality of water is better than that needed to protect present and potential beneficial uses, such existing quality will be maintained.	Substantive requirements are applicable to discharge of treated SVE system condensate to surface water.	Applicable (not in prior ROD)
	ACTION-SPECIFIC ARARs		
Permitted Hazardous Waste Facilities, 22 CCR 66264.10.66264.15, 66264.19, 66264.25	RCRA Subtitle C requirements provide action-specific ARARs for CERCLA actions if the CERCLA hazardous substance is also a RCRA hazardous waste, and the CERCLA action constitutes waste treatment, storage, or disposal as defined by RCRA. RCRA treatment requirements are applicable to any method, technique, or process, including neutralization, to change the character or composition of hazardous waste to render it less hazardous. RCRA disposal includes placement of waste into a landfill. Requirements for RCRA-permitted facilities are generally applicable to CERCLA activities that consist of treatment, storage, or disposal (TSD) of hazardous waste.	Substantive portions of these requirements are applicable because the selected remedy is similar to closure of a RCRA landfill and involves treatment (neutralization of acidic sludge) and disposal. Applicable sections are: General Inspection Requirements, Construction Quality Assurance Program and	Relevant and Appropriate (Relevant and Appropriate in prior ROD)

Table 5

Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria Selected for the Purity Oil Sales, Inc. Superfund Site, Malaga, CA*

Requirements	Description	Comment	A / R&A / TBC
		Seismic and Precipitation Design Standards.	
Groundwater Protection, 22 CCR 66264.90 to 66264.101	RCRA specifies three types of groundwater monitoring for TSDs: detection monitoring (22 CCR 66264.98), compliance monitoring (66264.99), and corrective action monitoring (66264.100). The groundwater monitoring program must be designed and operated to verify that hazardous constituents have not migrated beyond the outer containment layer prior to the end of post-closure care. The regulations are applicable to *"regulated units" which include landfills that received hazardous* waste after July 26, 1982.	The remedy requires continuation of the groundwater monitoring program, which is being implemented under the OU-1 ROD. Groundwater at the Site has already been *contaminated by historical* Purity operations.	Relevant and Appropriate
Land Treatment Unsaturated Zone Monitoring Requirements, 22 CCR 66264.90 to 66264.101	The regulation requires monitoring of the unsaturated zone at regulated units to monitor performance of the unit. The remedy involves the excavation and neutralization of acidic sludge, followed by placement under a low-permeability cap. Vadose zone monitoring requirements (66264.97) that require monitoring of soil and soil-pore liquids (as feasible) to determine whether hazardous constituents are migrating are relevant and appropriate because some contamination may remain within the vadose zone between the treated sludge and the water table.	The remedy involves the excavation and neutralization of acidic sludge, followed by placement under a low-permeability cap. Some contamination may remain within the vadose zone between the treated sludge and the water table. Substantive portions of these requirements are relevant and appropriate to the extent that the remedial design can *feasibly incorporate vadose* zone monitoring. The remedy requires vadose zone monitoring.	Relevant and Appropriate (Relevant and Appropriate in prior ROD)
Closure and Post-Closure 22 CCR 66264.110 to 66264.120	RCRA closure of a "regulated unit" requires minimization of the need for further maintenance or control; minimization or elimination of post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products.	Because the selected alternative leaves treated hazardous waste at the Purity site contained under a low permeability cap, substantive portions of these closure and post-closure requirements are applicable. Details of the closure plan will be specified in the remedial design.	Relevant and Appropriate (Relevant and Appropriate in prior ROD)
Landfill Closure and Post-	Closure of a landfill requires a final cover designed and	Substantive portions of the	Relevant and

Table 5

Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria Selected for the Purity Oil Sales, Inc. Superfund Site, Malaga, CA*

Requirements	Description	Comment	A / R&A / TBC
Closure Care 22 CCR 66264.310	constructed to prevent the downward entry of water into the landfill for a period of at least 100 years; function with minimum maintenance; promote drainage and minimize erosion of the cover; accommodate settling and subsidence so that the cover's integrity is maintained; and have a permeability less than or equal to the permeability of natural subsoils present. After final closure, all post-closure requirements contained in 22 CCR 66264.117 through 66264.120, including maintenance and monitoring, must be complied with throughout the post-closure period.	performance standards for RCRA covers applicable for this remedy. Maintenance and monitoring will be provided throughout the post closure period in accordance with the remedial design.	Appropriate (Relevant and Appropriate in prior ROD)
Construction and Operation Requirements for Waste Management Units, 23 CCR 2510-2601	Waste management units standards include design, construction, operation, and closure requirements for surface impoundments. Section 2511(d) exempts actions taken at the direction of public agencies to abate conditions of pollution from unauthorized releases of waste. Although alternative designs may be allowed if they are equally protective of water quality, specific applicable requirements for Class I (hazardous waste management units) include the following: -New and existing waste management unit landfills must be operated to ensure that wastes will be a minimum of five feet above the highest anticipated elevation of groundwater. -New and existing unites must be closed with a cover consisting of 2 feet of foundation material, 1 foot of compacted top soil (permeability equal to the bottom liner), and the final cover must be graded to prevent ponding or erosion -Post-closure care including monitoring, leachate collection, and cover maintenance must continue as long as wastes present a threat to water quality.	Soil. Substantive portions of these standards are relevant and appropriate for the disposal of treated sludge at the Purity site. The remedy will comply with this section to the extent feasible. The Purity remedy will keep wastes at least 5 feet above groundwater, and the cover will meet the listed standards. Post-closure monitoring and cover maintenance will take place as required in the remedial design O&M plan. Leachate collection will not be required because the treated and stabilized sludge is not anticipated to produce leachate.	Relevant and Appropriate (Applicable in Prior ROD)
Water Quality Monitoring for Classified Waste Management Units 23 CCR 2550.0 to 2550.12	Section 2511(d) exempts actions taken at the direction of public agencies to abate conditions of pollution from unauthorized releases of waste. Monitoring is required to detect leaks from waste management units and a corrective action program is required if leaks are detected. A waste management unit is broadly defined as an area of land where hazardous, designated, or non-hazardous waste is discharged. Owners and operators of new or existing landfills and surface impoundments shall monitor groundwater, surface water, and the unsaturated	Soil. Substantive portions of this requirement are relevant and appropriate and generally complement the federal RCRA and state RCRA requirements. Vadose zone monitoring will take place as part of the OU-2 remedial action to monitor SVE system performance. Groundwater monitoring is	Relevant and Appropriate (Applicable in prior ROD)

Table 5

Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria Selected for the Purity Oil Sales, Inc. Superfund Site, Malaga, CA*

Requirements	Description	Comment	A / R&A / TBC
	zone as feasible.	being conducted under the OU-1 ROD and will comply with the requirements of this section to the extent feasible.	
Clean Water Act/Porter Cologne Water Quality Control Act - NPDES/Pretreatment Requirements 40 CFR 122 and 403; California Water Code §13370	Both onsite and offsite discharges from CERCLA sites to surface waters are required to meet the substantive CWA NPDES requirements, including discharge limitations, monitoring requirements, and best management practices.	Substantive requirements of the following are applicable: BMPs must be implemented during construction to control sediment discharge to surface water leaving the site. Any discharge of condensate water from the SVE must meet the substantive NPDES requirements for effluent limitations and impact to the receiving water.	Applicable (Applicable in prior ROD)
San Joaquin Valley Unified Air Pollution Control District Rules and Regulations, Rule 220.1 – New and Modified Stationary Source Review	Requires Best Available Control Technology (BACT) and/or offsets for new or modified stationary sources of air pollutants including VOCs, NOx, SOx, PM-10, lead, and reduced sulfur compounds. These requirements are applicable for the SVE system.	Substantive requirements are applicable to the SVE vapor treatment unit emissions. These include standards for the maximum levels of air contaminants that may be released by the system.	Applicable (Applicable in Prior ROD)
San Joaquin Valley Air Pollution Control District Rules and Regulations, Regulation IV, Rule 4101	Prohibits the emissions of visible air contaminants to the atmosphere from any emission source. Applicable for aspects of the remedy (e.g., soil excavation, SVE) that may release visible air contaminants.	Substantive requirements are applicable to visible air contaminants (e.g., particulates) emitted from earth moving or from the SVE system.	Applicable (Applicable in Prior ROD)
San Joaquin Valley Air Pollution Control District Rules and Regulations, Regulation IV, Rule 4102	Prohibits the discharge of air contaminants in quantities that cause injury, detriment, or nuisance. Applicable to discharges of air contaminants from the site during remedial actions, including excavation and neutralization of acidic sludge.	Substantive requirements are applicable to visible air contaminants (e.g., particulates) emitted from earth moving or from the SVE system.	Applicable (Applicable in Prior ROD)
San Joaquin Valley Air Pollution Control District Rules and Regulations, Regulation IV, Rule 4201 and 4202	Limits permissible discharges of particulate matter. Applicable to construction activities that generate dust.	Substantive requirements are applicable to activities at the site that release dust (e.g., excavation, treatment, and	Applicable (Applicable in Prior ROD)

Table 5

Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria Selected for the Purity Oil Sales, Inc. Superfund Site, Malaga, CA*

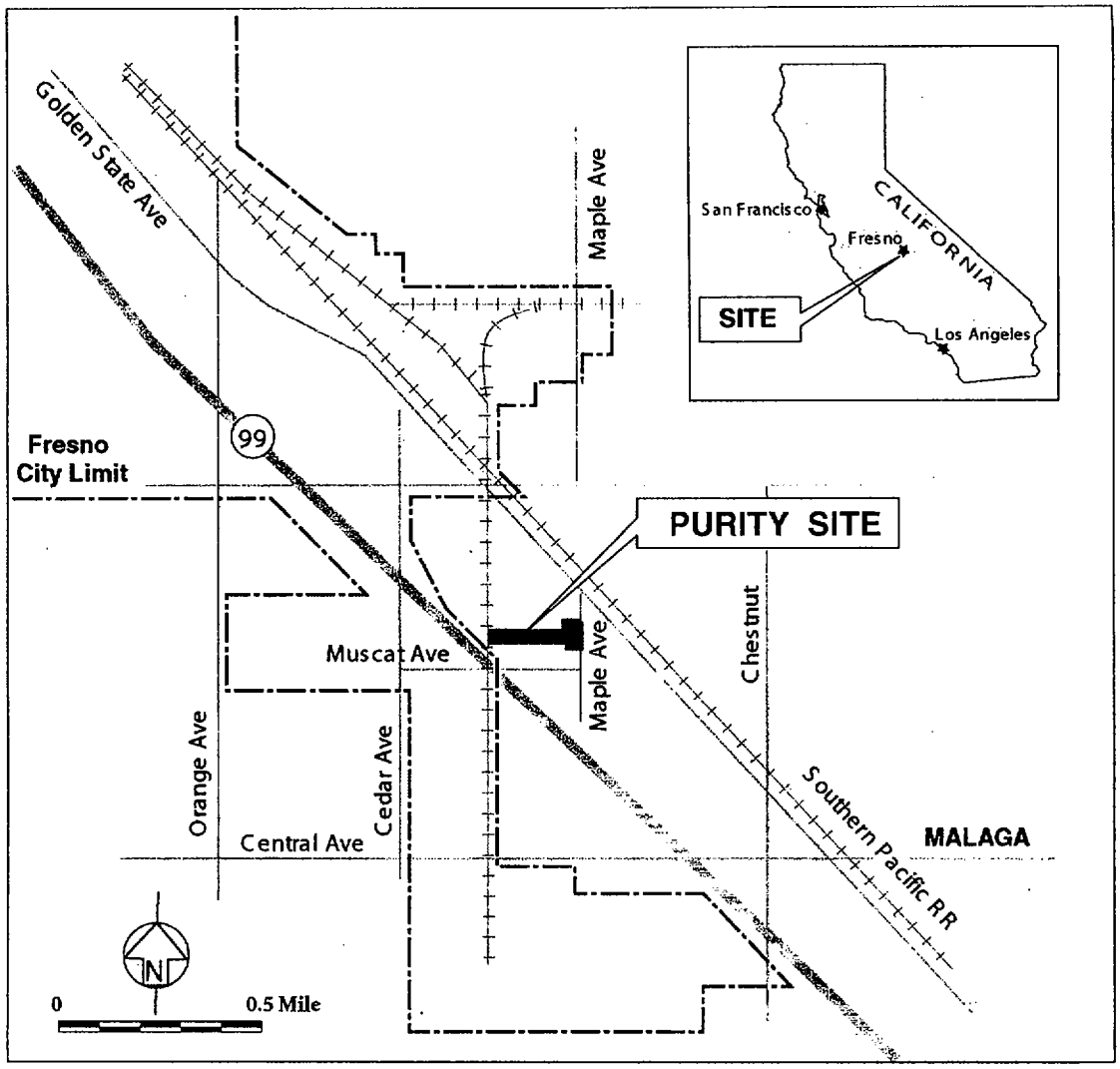
Requirements	Description	Comment	A / R&A / TBC
		placement of sludge)	
DTSC Land Use Covenant 22 CCR 67391.1 (a)	Requires imposition of appropriate limitations on land use by recorded land use covenant when hazardous substances remain on the property at levels that are not suitable for unrestricted use of land. Substantive portions applicable to the remedial action for those properties not cleaned up to allow unrestricted use.	Substantive portions applicable to the remedial action for those properties not cleaned up to allow unrestricted use. Deed restrictions will be placed on these properties and a land use covenant between DTSC and the landowner, naming EPA as a third-party beneficiary, will be executed.	Applicable (not in prior ROD)
DTSC Land Use Covenant 22 CCR 67391.1 (b)	Requires that the cleanup decision document contain an implementation and enforcement plan for land use limitations. Substantive portions applicable to the remedial action for those properties not cleaned up to allow unrestricted use. Specific requirements for implementation and enforcement of the land use covenant will be described in the remedial design.	Substantive portions applicable to the remedial action for those properties not cleaned up to allow unrestricted use. Specific requirements for implementation and enforcement of the land use covenant will be described in the remedial design.	Applicable (not in prior ROD)
CA Civil Code 1471(a) & (b)	Specifies requirements for land use covenants to apply to successors in title to the land.	Substantive portions applicable to the remedial action for those properties not cleaned up to allow unrestricted use. Land use covenants will include the requirement that they apply to successors in title to the land.	Applicable (not in prior ROD)
DTSC Land Use Covenant 22 CCR 67391.1 (d)	Requires that the land use covenant be recorded in the county where the land is located. Substantive portions applicable to the remedial action for those properties not cleaned up to allow unrestricted use.	Substantive portions applicable to the remedial action for those properties not cleaned up to allow unrestricted use. The land use covenant will be recorded in Fresno County.	Applicable (not in prior ROD)
LOCATION-SPECIFIC ARARs			
Location Standards for Hazardous Waste Facilities Seismic Considerations,	Specifies that portions of new facilities where transfer, treatment, storage, or disposal of hazardous waste will be conducted shall not be located within 200 feet (61 meters) of a	These standards are applicable to the selected alternative because the	Relevant and Appropriate (retained from

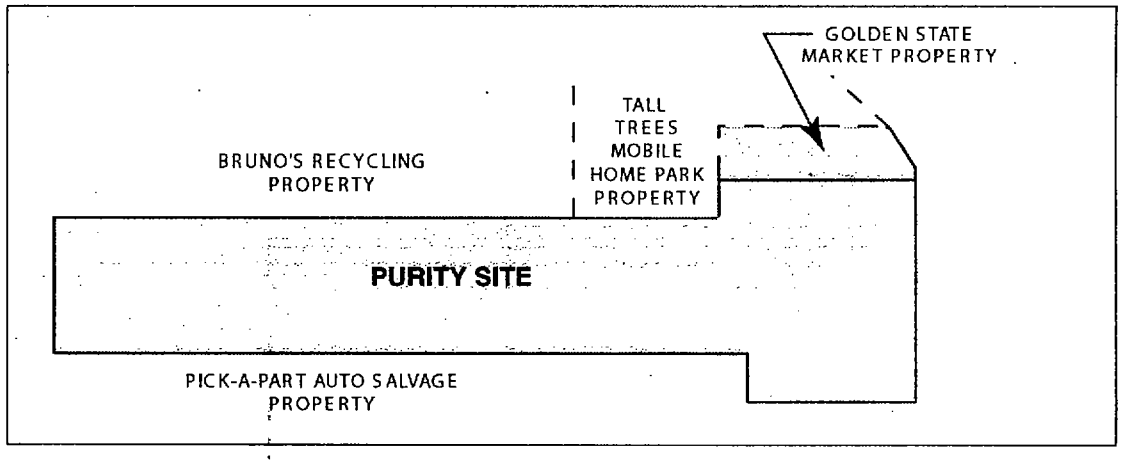
Table 5

Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria Selected for the Purity Oil Sales, Inc. Superfund Site, Malaga, CA*

Requirements	Description	Comment	A / R&A / TBC
22 CCR 66264.18	fault that has had displacement in Holocene period.	remedy involves disposal of hazardous waste. The Purity site does not lie within 61 meters of a known Holocene fault.	prior ROD)

*Note: these ARARs supercede the OU-2 ARARs from the 1992 ROD. ARARs from the prior ROD were analyzed and were changed when the new requirement was more protective.





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PURITY OIL SALES SUPERFUND SITE
FRESNO COUNTY, MALAGA, CALIFORNIA

FIGURE 1
SITE LOCATION MAP

CERCLA Remedy Selection Nine Criteria	ALT. 1 No Action	ALT. 2 Solidify Upper 2 Feet on Perimeter Slope of Waste Pits	ALT. 3 Neutralize and Solidify Perimeter of Waste Pits	ALT. 4 Place Engineered Fill on Perimeter Slope of Waste Pits	ALT. 5 Neutralize and Solidify Seep, Place Engineered Fill and Solidify Perimeter of Waste Pits	ALT. 6 Neutralize and Solidify Waste Pits Disposal Area	ALT. 7 Neutralize and Solidify Perimeter of Waste Pits and Neutralize Interior of Waste Pits	ALT. 8 Neutralize Entire Waste Pit Disposal Area and Place Engineered Fill
Overall Protectiveness	○	○	◒	◒	◒	●	●	●
Compliance with ARARs	○	◒	◒	◒	◒	●	●	●
Long-term Effectiveness	○	○	◒	◒	◒	●	●	●
Reduction of Toxicity, Mobility, or Volume	○	○	◒	○	◒	●	◒*	◒*
Short-term Effectiveness	N/A	◒	◒	◒	◒	●	●	●
Implementability	N/A	●	●	●	●	●	●	●
Cost	$0	$940,000	$2,700,000	$1,100,000	$4,000,000	$6,800,000	$5,300,000	$4,300,000
State Acceptance	State acceptance of the selected remedy will be evaluated after the public comment period.							
Community Acceptance	Community acceptance of the selected remedy will be evaluated after the public comment period.							

Notes:

ALT. Alternative

EPA's selected remedy

* Metal toxicity of waste remains unchanged, therefore, partially meets criterion

○ Does not meet criterion

◒ Partially meets criterion

● Fully meets criterion

Figure 2: Purity Property Remedy Alternatives Evaluation

CERCLA Remedy Selection Nine Criteria	ALT. 1 No Action	ALT. 2 Storage Shed Demolition, Excavation and Reconstruction, and Installation of Ventilation System	ALT. 3 Storage Shed and Market Demolition and Reconstruction	ALT. 4 Purchase GSM Property and Industrial Rehabilitation
Overall Protectiveness	○	◒	●	●
Compliance with ARARs	○	◒	●	●
Long-term Effectiveness	○	◒	●	●
Reduction of Toxicity, Mobility, or Volume	○	◒	●	●
Short-term Effectiveness	N/A	◒	●	●
Implementability	N/A	◒	●	●
Cost	$0	$50,000 to $75,000	$390,000 to $1,360,000*	$150,000 to $200,000*
Acceptance	State acceptance of the selected remedy will be evaluated after the public comment period.			
Community Acceptance	Community acceptance of the selected remedy will be evaluated after the public comment period.			

Notes:

ALT. Alternative

* This estimate does not include the purchase price of the property, which is subject to negotiation.

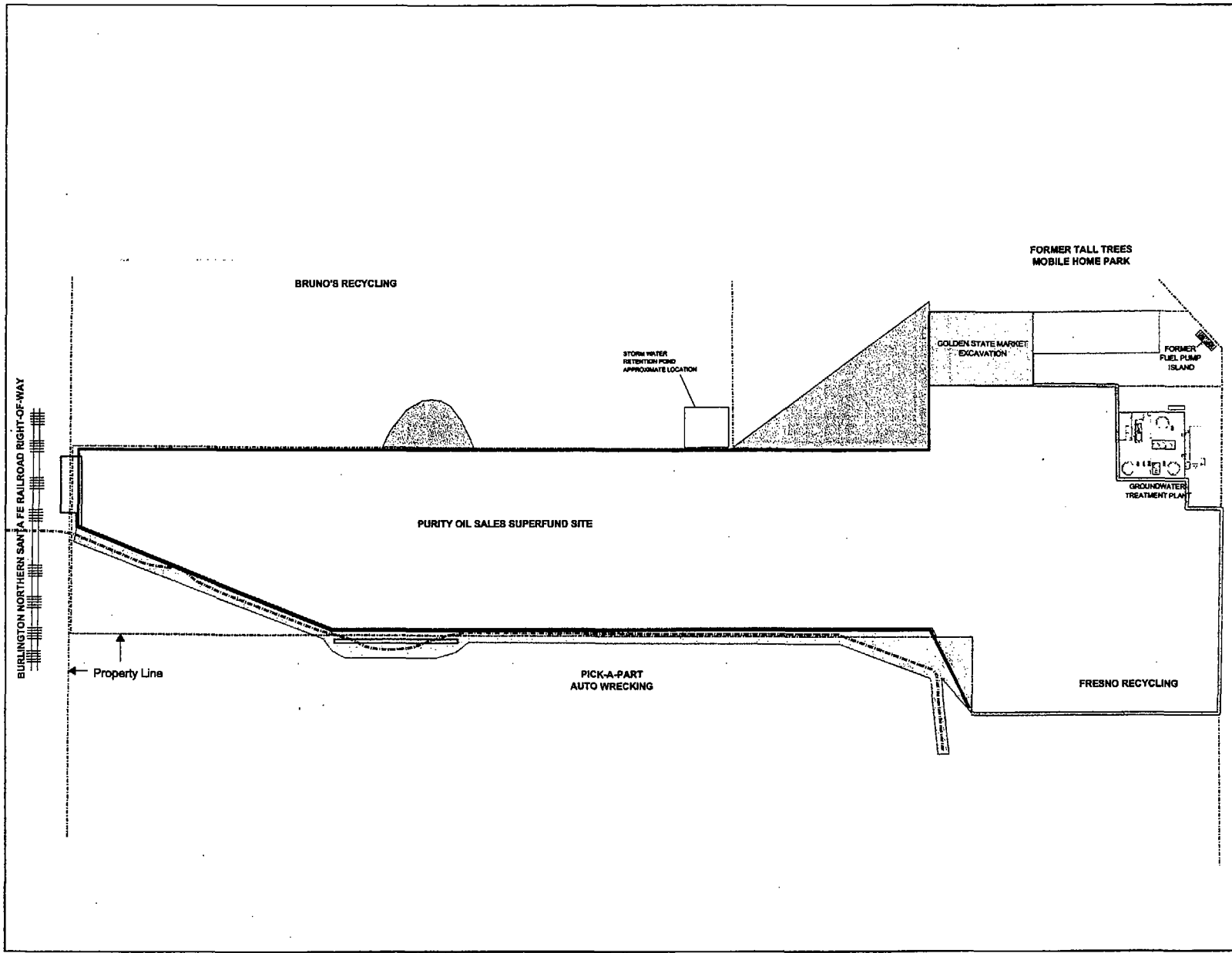
○ Does not meet criterion

◒ Partially meets criterion

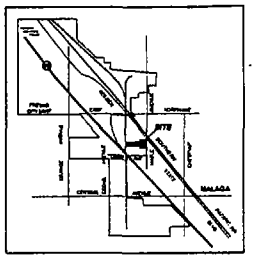
● Fully meets criterion

▭ EPA selected remedy

Figure 3: Golden State Market Remedy Alternatives Evaluation



SITE LOCATION MAP



LEGEND

- EXCAVATION
- PERIMETER EXPLORATION ANCHOR TRENCH EXCAVATION
- EAST PERIMETER EXPLORATION ANCHOR TRENCH EXCAVATION
- PROPERTY LINE
- FRESNO IRRIGATION DISTRICT NORTH CENTRAL CANAL (APPROXIMATE LOCATION)
- RAILROAD LINE
- POTENTIAL AREA OF DEED RESTRICTION FOR CONTAMINATION BELOW 7 FEET
- GOLDEN STATE MARKET BUILDING

NOTES:
DEEP SPACE RESTRICTED AREAS BASED ON LIMITED SAMPLING.

EXTENT OF CONTAMINATION IS APPROXIMATE.

N

50 0 50

Feet (Approximate Scale)

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PURITY OIL SALES SUPERFUND SITE
FRESNO COUNTY, MALAGA, CALIFORNIA

FIGURE 4
POTENTIAL AREAS OF DEED RESTRICTION
(FOR CONTAMINATION BELOW 7 FEET)

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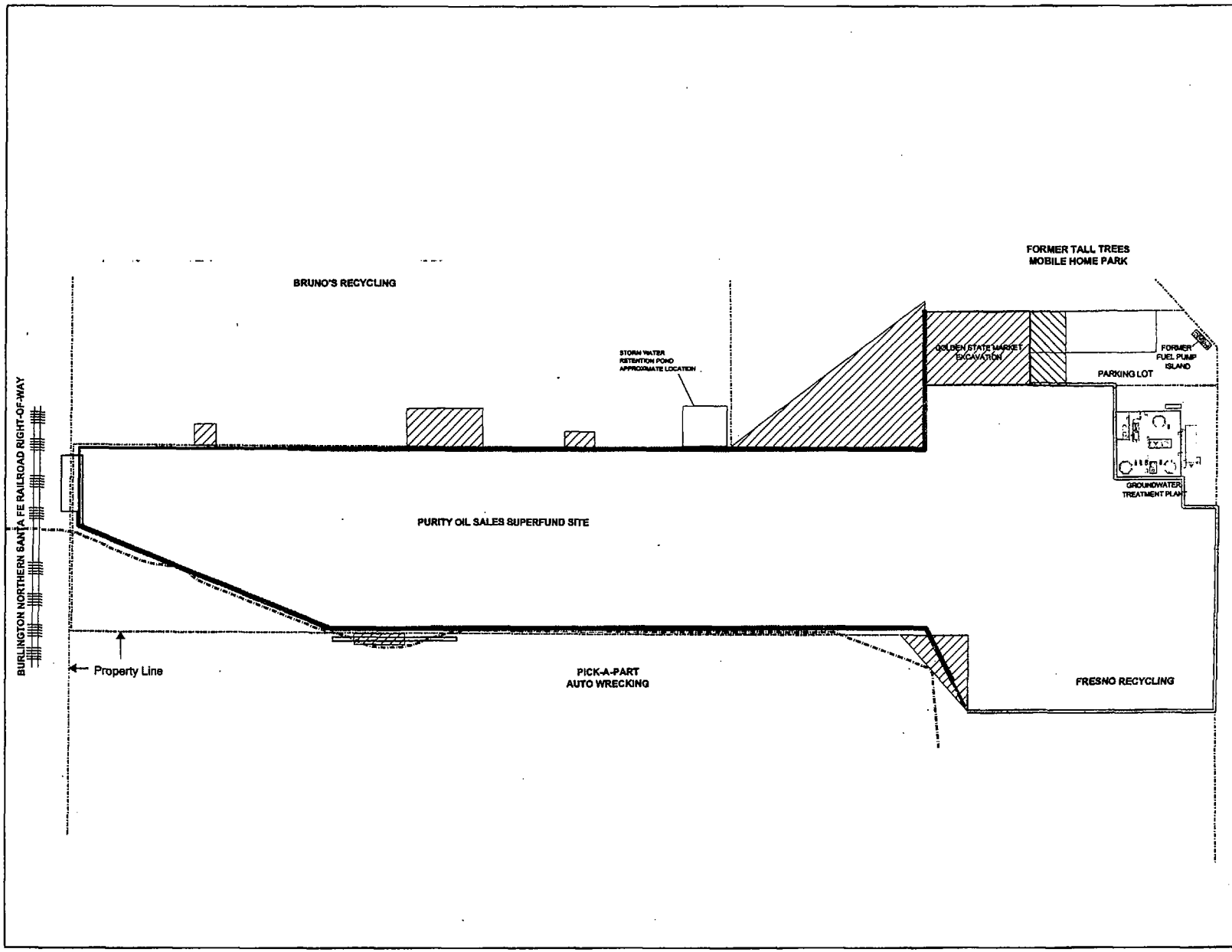
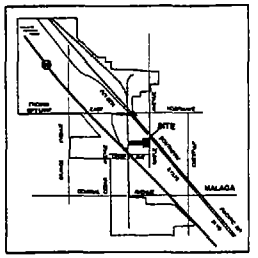


SITE LOCATION MAP



LEGEND

- EXCAVATION
- PERIMETER EXPLORATION ANCHOR TRENCH EXCAVATION
- EAST PERIMETER EXPLORATION ANCHOR TRENCH EXCAVATION
- AREA OF SOIL CONTAMINATION IN PERIMETER EXPLORATION ANCHOR TRENCH
- PROPERTY LINE
- FRESNO IRRIGATION DISTRICT NORTH CENTRAL CANAL (APPROXIMATE LOCATION)
- RAILROAD LINE
- POTENTIAL AREA OF EXCAVATION BASED ON GOLDEN STATE MARKET ALTERNATIVE
- GOLDEN STATE MARKET BUILDING
- POTENTIAL AREA OF EXCAVATION BASED ON VISUAL CONTAMINATION TO 4 FEET (INDUSTRIAL) AND TO 7 FEET (RESIDENTIAL)

NOTE:
EXTENT OF CONTAMINATION IS APPROXIMATE.

N

50 0 50
Feet (Approximate Scale)

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PURITY OIL SALES SUPERFUND SITE
FRESNO COUNTY, MALAGA, CALIFORNIA

FIGURE 5
SOIL TO BE EXCAVATED